# Analysis of Psychological Stability as a Factor in Determining Medical Accession Standards for Transgender Individuals

## Part I: Task and Methodology

In their ongoing efforts to address concerns regarding medical standards for transgender individuals accessing into the U.S. Military, the Accession Medical Standards Working Group tasked the Psychological Health Center of Excellence (PHCoE) and the Accession Medical Standards Analysis and Research Activity (AMSARA) to investigate any relevant data sources that may suggest appropriate periods of psychological stability prior to enlistment or commissioning. Specifically, four questions were posed by Dr. Ciminera and CAPT Bradford on behalf of the AMSWG:

*1. What are the appropriate periods of stability prior to accession into the military for medical (e.g. surgeries, cross-sex hormone use) and psychological conditions associated with gender dysphoria or a gender transition?*

*2. Do our current accession stability period standards for mental health conditions such as depression or anxiety (typically 36 months of stability following treatment) appropriately inform what we should consider appropriate for gender dysphoria or gender transition?*

*3. Does the evidence show that issues such as cross-sex hormone therapy, not a medical condition, should have an equal period of stability as gender dysphoria?*

*4. What would be the next logical steps for further research into this space to inform DoD medical standards?*

To address these core questions, the PHCoE and AMSARA teams crafted a joint approach that includes four phases:

Phase 1: Initial environmental scan of relevant treatment standards, key literature, and international military standards for military accession by transgender individuals.

Phase 2: Analysis of health care data from an identified cohort of individuals diagnosed with gender dysphoria or undergoing gender transition medical procedures in the military health system.

Phase 3: Comprehensive literature review of psychological stability associated with gender dysphoria, gender transition, and hormone replacement therapy.

Phase 4: Analysis of administrative and health care data from a cohort of accessions and separations from transgender disqualifications and waivers.

The current information paper addresses Phases 1 and 2 of this analysis. Phases 3 and 4 will continue as a joint effort between PHCoE and AMSARA throughout Fiscal Year 2021.

**Part II: Literature Review on Psychological Stability in Transgender Individuals**

The *Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People* (Version 7) published by the World Professional Association for Transgender Health (WPATH, 2012) maps out the epidemiology of gender non-conformity, non-medical and medical interventions for gender-related distress, and roles of various providers through various interventions. In considering psychological stability and suitability for military service among transgender individuals, several principles from the WPATH guidelines are relevant:

1. The recommendation to de-pathologize gender non-conformity and recast it as a normal variation of human diversity;
2. Correctly diagnose the "socially-induced" nature of mental health concerns associated with gender non-conformity that comes from widespread prejudice and discrimination rather than gender non-conformity itself;
3. Understand gender dysphoria as distress that can fluctuate in individuals of all gender identities and not necessarily an inherent aspect of gender non-conformity.

The WPATH Standards of Care document also acts as a possible template and helpful comprehensive guide for other institutions. In addition, the principles above are consistent with movement in the International Classification of Diseases (ICD-11) developed by the World Health Organization that renames gender dysphoria as gender incongruence instead and relocates the condition to the sexual health category rather than mental health. They are also consistent with the Department of Defense commitment to diversity and appreciation for the ways various perspectives and abilities maximize our fighting force.

Psychological health issues such as depression, anxiety, suicidality, and non-suicidal self-injury are more prevalent among transgender individuals seeking medical care compared to the general population. Representative and methodologically-sound studies of the transgender population and specifically, of military or Veteran transgender individuals are rare. Overall, transition-related medical interventions positively impact mental health and quality of life.

Elders, Brown, Coleman, Kolditz, and Steinman (2014) summarize and challenge four common notions to justify barring transgender individuals from Service which are actually not supported by research and not internally consistent with other DoD policies and populations. These four notions are (pp. 4-5):

> *(1) transgender personnel are too prone to mental illness to serve, (2) cross-sex hormone therapy is too risky for medical personnel to administer and monitor, (3) gender-confirming surgery is too complex and too prone to postoperative complications to permit, and (4) transgender personnel are not medically capable of safely deploying.*

The most notable challenge to these assumptions is falsely equating transgender identity with mental health disorders, which has become a debunked connection broadly in the medical field. In addition, there are a number of other conditions that require hormone treatment which do not bar service or deployment for other groups, including: dysmenorrhea, endometriosis, menopausal syndrome, chronic pelvic pain, and renal or voiding dysfunctions. In addition, the authors cite

that 1.4% of all US Service Members report taking prescribed anabolic steroids. The authors conclude that the transgender bar is inconsistent with current medical understanding and relies on assumptions that are either unfounded or inconsistent with other standards for conditions affecting predominately cisgender individuals.

**Core Findings regarding Psychological Stability of Transgender Individuals**

Dhejne et al. (2016) systematically reviewed 47 studies on gender dysphoria among those seeking gender-affirming treatment and concluded that transgender individuals experienced higher rates of psychiatric disorders at study baselines. Mood disorders such depression and anxiety disorders are prevalent among transgender individuals (Dheine et al., 2016; Freitas et al., 2020; McCann & Brown, 2018). While little has been published on the military transgender community, Lindsay et al. (2016) describe mental health prevalence rates for 336 military veterans who served in Iraq and/or Afghanistan and report that 70% of transgender women and 67% of transgender men had depressive disorders. Additionally, 51% of transgender women and 55% of transgender men had anxiety disorders (Lindsay et al., 2016). Swedish civilian transgender individuals actively seeking treatment were approximately 6 times more likely to receive treatment for a mood or anxiety disorder and almost 4 times more likely to use an antidepressant than the general population (Bränström and Pachankis, 2020). The prevalence rates of depression among transgender individuals ranges from 21-60% (Boza & Perry, 2014).

A secondary data analysis of medical records from the Veteran Health Administration (N=32,441), comparing suicide, homicide, and all-cause mortality rates, indicated that transgender Veterans were significantly more likely to complete suicide than the cisgender comparison group and cisgender Veterans were significantly more likely to die from all-cause mortality (Boyer, Youk, Haas, Brown, Shipherd, Kauth, Jasujaa, & Blosnich, 2021). Similar to the Bränstrom and Pachankis (2020) study, suicide completion was still a low-base rate behavior despite significant differences between groups (.8% versus .2% in the cisgender group). Of note, all-cause mortality was higher in the cisgender population in ages 40-64 (19.9% versus 13.6% in the transgender group) and >65 (40.3% versus 25.7% in the transgender group). Marshall et al. (2016) systematically reviewed 31 studies on non-suicidal self-injury, suicidal ideation, and suicide attempts among transgender individuals and reported all to be prevalent across studies. Five of the reviewed studies suggest that non-suicidal self-injury is more prevalent among transgender individuals, specifically among trans men, with one study further clarifying that trans women may be more likely to engage in self-harm behaviors while thoughts of self-harm may be more common among trans men. Twenty-six studies on suicidality were reviewed and researchers concluded that suicidal thoughts and attempts are prevalent among transgender individuals. Across reviewed studies, rates of suicidal ideation within the samples ranged widely from 37% to 81%, with trans men experiencing more prevalent suicidal ideation, and rates of suicide attempts ranged from 18% to 52% of trans participants reporting in their lifetime (Marshall et al., 2016). Rates were consistently higher than the national US average, and those reported by other subgroups in the LGBT community. In one study, transgender individuals within the medical system had consistently higher rates of hospitalization after a suicide attempt over a ten-year period compared to the general population; however, this rate was low for both

groups (.08 versus .01%; Bränström and Pachankis, 2020). Higher rates of suicide attempts for transgender individuals are reportedly correlated with history of incarceration and lower socioeconomic status (McNeill, Ellis, & Eccles, 2017). Studies have indicated that factors indicating higher risk for suicidal ideation include: history of abuse, history of psychotherapy or medication use, history of physical or sexual violence, who were planning to or had already transitioned and were experiencing discrimination, while those who did not plan to transition experienced less risk (McCann & Brown, 2018; McNeill et al., 2017).

*Variation within the Trans Community*

Studies have shown there to be variability of mental health issue prevalence and severity within the trans community but have offered inconsistent findings regarding those differences. Researchers offer conflicting conclusions, particularly regarding the psychological health issues experienced by transmen versus transwomen. Some studies have shown higher psychopathology among trans women, while others have shown no difference (Dhjene et al., 2016). Additionally, some studies show greater risk for suicide attempts among trans men, while at least one study has reported trans women to be at greater risk, and still others have found no difference in risk for suicide attempt (McNeil et al., 2017).

*Minority Stress and Social Risk Factors*

When describing the risk factors for psychological issues in this population, it is important to acknowledge the many social factors that contribute as well. Minority stress plays a role in trans people's lives, because of the psychological damage caused by stigma, discrimination, and transphobia (McCann & Brown, 2018). By acknowledging the impact of minority stress, researchers and clinicians can avoid pathologizing and blaming transgender folks for the higher rates of psychological issues that they experience (Scandurra, Amodeo, & Valerio, 2017). Trans folks experience risk factors related to discrimination by others such as limited access to services such as housing, healthcare, and financial supports that are necessary to meet physical and emotional needs (McCann & Brown, 2018). The effects of discrimination are also seen in the workplace, as it can impact employment status and financial stability, social isolation and exclusion (McCann & Brown, 2018). Physical safety concerns are also reported among the trans community as causing psychological distress and are a realistic threat (McCann & Brown, 2018). Of the documented hate violence against members of the LGBTQ community in 2017, 32% of survivors were transgender (National Coalition of Anti-Violence Programs, 2018). Of the 52 documented hate violence homicides of LGBTQ people in 2017, 52% ($n$ = 27) were transgender or gender non-conforming (National Coalition of Anti-Violence Programs, 2018). Further, a majority ($n$ = 22) of transgender people who were killed in 2017 were trans women of color (National Coalition of Anti-Violence Programs, 2018).

*Limitations of Current Literature on Psychological Issues*

There are many limitations to the current research on psychological issues experienced by transgender individuals. While studies indicate that mental health issues may remain prevalent among transgender folks, it is difficult to draw generalizable conclusions from older studies, particularly when current medical and psychosocial interventions have progressed a lot over the

past 20 years (Dhjene et al., 2016). Many studies show a sampling bias of transgender people actively seeking transition-related medical interventions or other treatment within a healthcare setting, which could skew the findings towards overrepresenting those with more severe psychopathology, or individuals with greater contact with medical professionals who may diagnose them, and therefore, may not represent the transgender population as a whole (Dhjene et al., 2016). This could also contribute to prevalence rates, as transgender individuals actively engaging in the medical system might have increased opportunities to be diagnosed with mental disorders. There are also issues with generalizability of findings to the trans people in the United States, due to many studies being conducted in Europe, with additional difficulty generalizing findings to those in the military (McCann & Brown, 2018). Study samples often under-represent people of color, neglecting intersectionality and limiting the applicability of findings to individuals experiencing compounded minority stress (McCann & Brown, 2018). Lack of agreement on terms used to describe the transgender community presents an additional challenge to application of findings, as does the lack of attention to gender identity and expression diversity and fluidity (i.e., non-binary, gender non-conforming, gender fluid) within the larger trans community. The methods of traditional quantitative studies often do not have the flexibility that is required to capture and explain the nuances of diverse identities and experiences of this community. When studies do differentiate findings based on smaller subgroups, transwomen appear to be overrepresented across many study samples (McCann & Brown, 2018; Van de Grift et al., 2017).

**Psychological Effects of Transition-Related Medical Interventions**

In general, transition-related medical interventions positively impacted mental health and quality of life. However, there are few studies that measure transition-related medical interventions over time and at specific time-points. In addition, there have only recently been initiatives to standardize outcome measurements for transition-related medical interventions, which have historically made compared groups and outcomes hard due use of non-validated instruments (e.g., Andréasson, Geogas, Elander, & Selvaggi, 2018). We identified three large or cohort-based European studies that provided information on outcomes (Bränström & Pachankis, 2020; Van de Grift, Elaut, Cerwenka, De Cuypere, Richter-Appelt, & Kreukels, 2017; White Hughto, & Reisner, 2016) and one US-based study (Hughto, Gunn, Rood, & Pantalone, 2020).

Of note, many European countries have universal healthcare infrastructure and access for transgender individuals, which may be more transferable to the military healthcare context than the civilian United States system. Bränström and Panchankis (2020) examined healthcare utilization longitudinally from a national Swedish register and found that a sample of 2,679 individuals who received a gender incongruence diagnosis were, at baseline and in general, were more likely to receive treatment for mood or anxiety disorder; however, that gap reduced based on time since last gender-affirming surgery. The likelihood of being treated for mental health treatment reduced by 8% for each year after gender-affirming surgery. Transgender individuals were equally likely over time to be hospitalized after a suicide attempt (approx. .08% compared to .01% of the general population) and were more likely than the general population to be hospitalized, but the rates were generally low. Van de Grift and colleagues (2017) found that 200

individuals who provided information at baseline upon entering into gender identity clinic and 6 years follow-up who received hormone or surgical intervention reported increased body satisfaction compared to individuals who had received no treatment ($n$ = 29). Body satisfaction was not related to gender dysphoria, but was positively related to psychological symptoms. In other words, there was a lot of individual variation, but in general transition-related medical intervention can decrease psychological symptoms and increase body satisfaction. White Hughto, and Reisner (2016) systematically reviewed three studies from gender identity clinics across Italy and Belgium and found that 247 transgender individuals receiving hormone treatment reported significant improvement in psychological functioning (i.e., general mental health symptoms and quality of life) after starting hormone treatment at 3-6 months and 12 months. There was a statistically significant improvement in self-reported quality of life for the transfeminine group ($n$ = 180) and a non-significant improvement for the transmasculine group, which may be related to a smaller sample ($n$ = 67). Hughto and colleagues (2020) identified that social and medical affirming interventions were inversely related to self-reported mental health symptoms and non-suicidal self-injury in a sample of 288 US-based individuals.

Because of individual variation, relevant variables, and insufficient outcome data, we cannot make conclusions about the specific timing of the positive effects of hormone treatment and/or surgical intervention. However, these positive effects may be experienced even as early as 3-6 months (e.g., White Hughto & Reisner, 2016). Gender dysphoria may become an obsolete diagnosis and may not be related as strongly to overall psychological functioning as body satisfaction (e.g., Van de Grift et al., 2017). Baseline and outcome experiences of transition-related medical interventions are significantly impacted by a variety of mechanisms, included the cultural context, structural barriers to healthcare and other basic needs, and social support (e.g., White Hughto, Reisner, & Pachankis, 2015). Another major limitation is that other non-medical, gender affirming interventions often co-occurred with medical interventions, which can also have a significant positive impact on treatment outcomes (e.g., Hughto et al., 2020). It follows that gender dysphoria as a diagnosis may not be useful as a determinant for overall functioning and focusing on making the environment affirming can itself improve outcomes.

**Summary of Studies Examining Psychological Changes following Transition-Related Medical Interventions**

| Study | Sample | Conclusions | Limitations |
|---|---|---|---|
| Bränström & Pachankis, 2020 | Swedish; N=2,679<br><br>Time-points: Baseline, annual through 10+ years | Gender affirming surgery may be more strongly correlated with less mental health care utilization over time | No matched controls<br><br>Only recruited individuals already seeking medical transition |
| Van de Grift, Elaut, Cerwenka, De Cuypere, Richter-Appelt, & Kreukels, 2017 | European; N=201<br>o 135 transfeminine<br>o 66 transmasculine<br><br>Time-points: Baseline, + 6 years | At 6 years post-intervention, individuals with and without medical intervention had similar self-reported gender dysphoria to the general population<br><br>Gender dysphoria was not related to body satisfaction and body satisfaction was related positively to mental health symptoms | No matched controls; however, there was a no-treatment comparison group, but was not randomized |
| White Hughto, & Reisner, 2016 | European; N=247<br>o 180 transfeminine<br>o 67 transmasculine<br><br>Time-points: baseline, 3-6 months, and 12 months | Hormone treatment was correlated with significantly improved psychological functioning at both follow-up time-points | No control groups<br><br>Mental health treatment provided concurrently with hormone treatment<br><br>Social transition occurred concurrently with hormone treatment |
| Hughto, Gunn, Rood, & Pantalone, 2020 | American; N=288<br>o 234 trans-masculine gender spectrum<br>o 54 trans-feminine gender spectrum<br><br>Time-points: Cross-sectional | Effects of non-medical and medical gender affirmation are likely additive with regard to mental health and quality of life | No control groups<br><br>Not longitudinal (i.e., measured over time) |

## Part III: Analysis of Medical Administrative Data on Transgender Service Members

### Key Findings

- Applicability of MHS utilization data to questions of accession standards or waiting periods is limited.
- Comparison of matched transgender and depression cohorts suggest that, ***relative to Service Members with depression***,…
    1. …transgender Service Members are more likely to remain on active duty longer following cohort eligibility; AND
    2. …transgender Service Members spend less time in a non-deployable status due to mental health reasons.
- Most transgender Service Members will eventually receive hormone treatments and there appears to be no meaningful difference in deployability (related to mental health concerns) between those with and without a history of such treatment.

### Background

On 15MAR2021, the Psychological Health Center of Excellence (PHCoE) was tasked by USD(P&R/HA) to support a request for information related to DoD accession policies as they pertain to transgender recruits. In addition to providing a literature review and an analysis of existing policy, PHCoE was directed to determine how transgender service members' healthcare utilization might inform discussions on this matter.

A number of factors limit our ability to apply medical administrative data meaningfully to address the important questions posed around accession waiting periods for transgender recruits. Principal amongst these limitations is that DoD medical databases do not contain information on transgender individuals who apply to join military service but are not ultimately selected. Consequently, data that might speak to these issues are limited to the healthcare utilization of those transgender service members who either met existing accession standards or whose transgender status was only evident following entry into military service. Analysis and interpretation are further limited by the lack of availability of accurate readiness, deployability, and duty limitation data. Finally, it is important to note that members of the transgender community are encouraged (and in many cases required) to maintain contact with mental health services. As such, using administrative data alone to distinguish contacts with mental health service providers that might be duty-limiting from those mental health contacts that are functionally equivalent to wellness visits poses a substantial threat to the validity and interpretability of potential findings.

In light of the limitations mentioned above, and given that available Military Health System (MHS) data do not speak directly to the issue of appropriate accession waiting periods (for any specific circumstance), PHCoE undertook analyses to identify a cohort of transgender service members and describe patterns of healthcare utilization that *might* indicate non-deployability or other duty limitations. These analyses may provide useful context to decision-makers as they consider options related to transgender accessions policy.

## Methods

Analysts identified a cohort of transgender service members based on qualifying diagnoses[1] recorded in either the first or second diagnostic position using either ICD-9 or ICD-10 diagnostic codes[2] between CY2015 and CY2020. This approach to case-finding yielded a cohort of 2,039 individuals over the six-year period. To identify contacts with the mental health system that might be duty-limiting we considered all inpatient admissions and outpatient encounters where the primary reason for the visit/admission (as defined by the diagnostic code recorded in the first diagnostic position) had to do with mental health or substance abuse concerns *other than gender dysphoria or tobacco dependence*. The exclusion of mental health contacts related to gender dysphoria was meant to exclude those encounters that might be considered psychological wellness checks for transgender individuals.

Additionally, analysts identified a matched depression cohort for the purposes of comparison. The two matched cohorts each contained 2,039 individuals and were matched based on age (year), service (Air Force, Army, Marine Corps, Navy), month of entry diagnosis, and component (Active or Reserve). Readiness outcomes were examined for each cohort and compared.

Two sets of ancillary analyses were also carried out. First, since some forms of hormone therapies can render individuals non-deployable, we described hormone therapy use by cohort year with specific attention to routes of administration. We also compared the portion of the transgender cohort who received hormone therapy at some point during the observation period with those who never received hormone treatments and compared both groups on readiness outcomes. Finally, we identified seven transgender Service members for whom gender-dysphoria-related information existed in the medical record prior to accession (i.e., Service Members who were dependent beneficiaries prior to enlisting). Given the extremely small sample size, no conclusions can be drawn that could be generalized to the larger population of transgender recruits. However, since this small group represents the military health system data most applicable to the question of accession standards, the readiness outcomes of these group members are described in a brief case series table.

## Findings

**Table 1: Cohort Entry**

| Cohort Entry Year | % of Cohort |
|---|---|
| 2015 | 6.78% |
| 2016 | 24.39% |
| 2017 | 24.83% |
| 2018 | 17.57% |
| 2019 | 16.25% |
| 2020 | 10.17% |

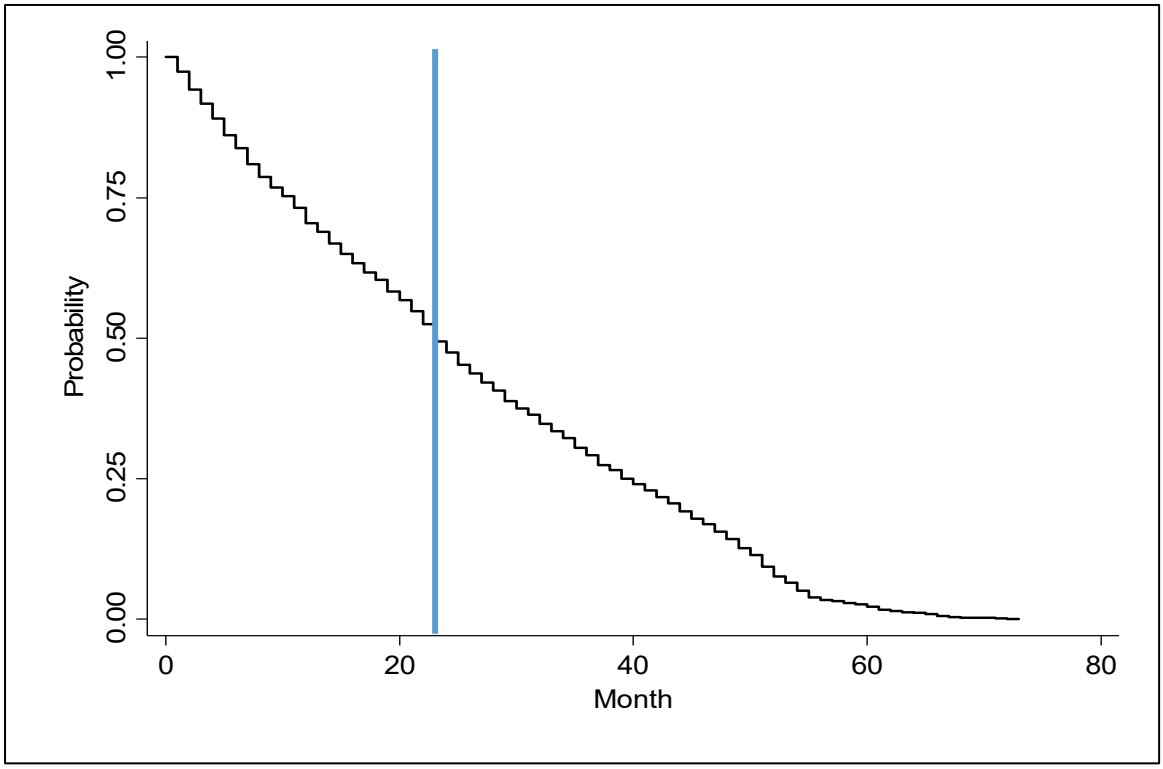
As noted above, the identified cohort consisted of 2,039 transgender service members of whom roughly 85% were enlisted, about 5% were officers, and around 10% were either in other rank categories or had no recorded rank group. Table 1 shows the distribution by Calendar Year of entry into the cohort across the observation period. 2016 and 2017 mark the years with the largest proportion of Service Members entering the cohort.

[1] Transsexualism, Dual Role Transvestism, Gender Identity Disorder Of Childhood, Other Gender Identity Disorders, Gender Identity Disorder, Unspecified, Transvestic Fetishism, Personal History Of Sex Reassignment

[2] 302.3, 302.6, 302.50, 302.51, 302.52, 302.53, 302.85, F64.0, F64.1, F64.2, F64.8, F64.9, F65.1, Z87.890

Since the length of time that service members remain on active duty impacts both their deployability and the level of confidence of our estimates, we first examined how long individuals remained on active duty as observable in the medical benefits eligibility data. For the purpose of this time-to-event analysis, time "zero" for all members was set to the date at which they became identifiable as cohort members in the medical record. Individuals were then followed in the eligibility data and their end-of-service date was set as the month following the last month during which they were listed as being eligible for benefits by virtue of their active duty status. Individuals still on active duty at the time of analysis have no end-of-service dates. On average, members' first documented cohort-qualifying medical encounter occurred about 2.3 years (SD=1.8) after cohort members' earliest MHS enrollment as an Active Duty Service Member.[3] There was no evidence to suggest within-cohort differences in time on Active Duty based on the year in which service members joined the cohort. Based on observed "survival" on active duty, we would expect that slightly more than 50% of transgender service members will leave service by 23 months after receiving their first transgender-related diagnosis within the MHS. How this compares with retention amongst non-transgender service members, however, is now known. The results of this analysis are shown below in Figure 1.

**Figure 1: Time to Termination of Service (Transgender Cohort)**



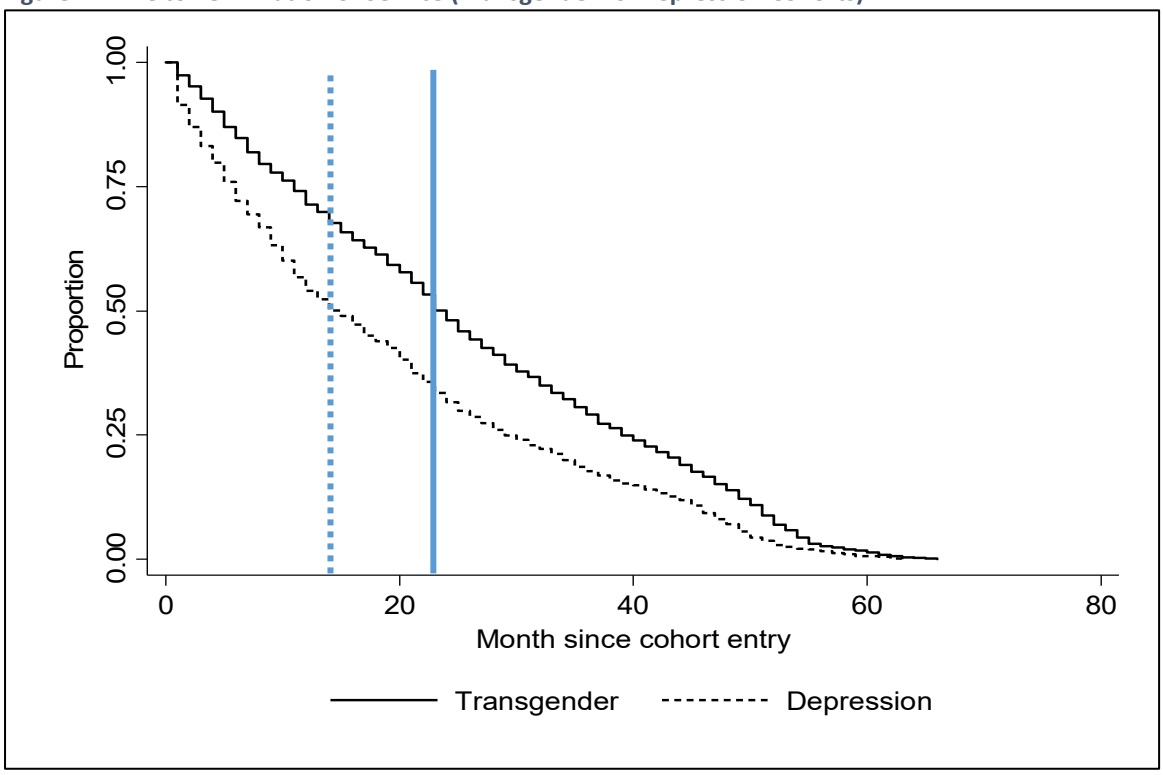

Given the substantial attrition evident in the cohort, there are many fewer transgender service members with longer service histories available for observation. The most consequential impact of this for our purposes is that our ability to predict longer-term readiness outcomes is even

[3] Administrative data related to pre-cohort entry enrollment in the MHS is unreliable. Nearly 20% of identified cohort members were excluded from the calculation of mean time to cohort entry due to missing or obviously erroneous data.

further limited by a rapidly decreasing population under study. As a result, examination of likely non-deployable episodes was limited to the first 24 months following identification as a member of the transgender cohort.

Interestingly, the matched cohort of Service Members with depression were more likely to leave service sooner following cohort entry as compared to the transgender cohort. As presented in Figure 2, below, 50% of the transgender cohort had left service in the first 23 months following gaining cohort eligibility. Amongst the depression cohort, however, 50% had left service within the first 14 months.

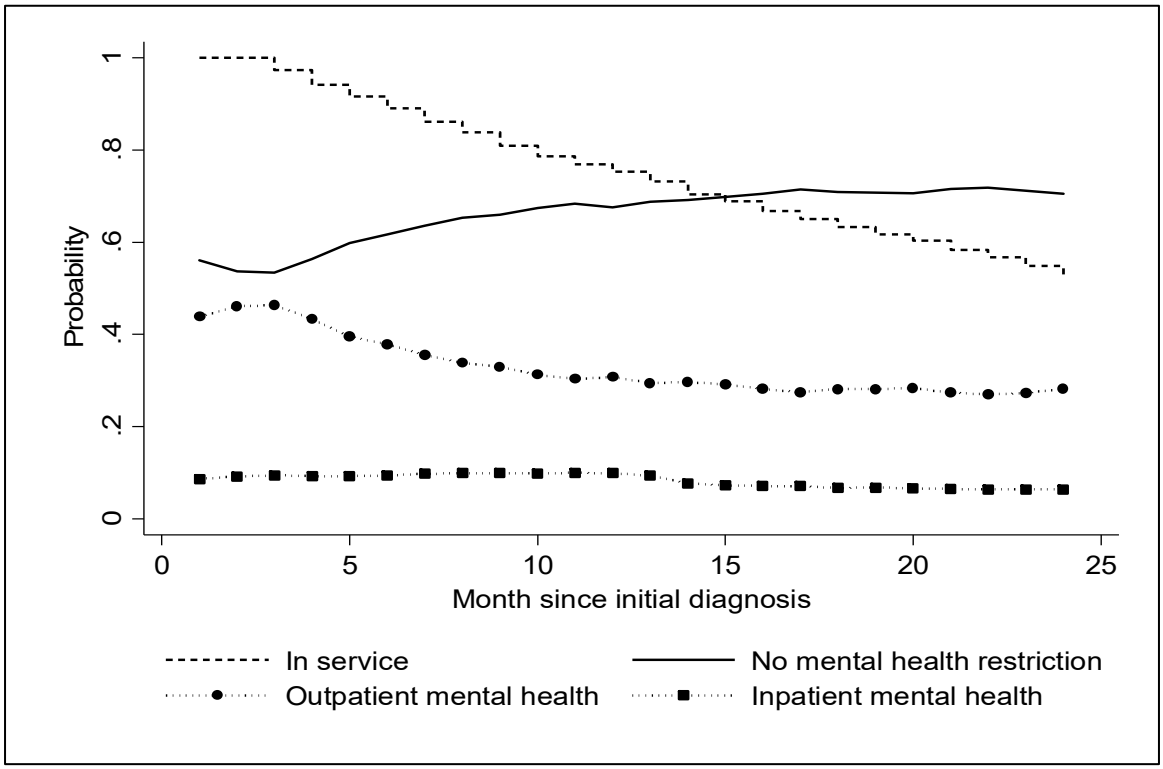
**Figure 2: Time to Termination of Service (Transgender vs. Depression Cohorts)**




PHCoE applied CENTCOM standards in considering non-deployability based on mental health concerns amongst the identified cohort of transgender service members. Per available guidance, service members are considered non-deployable to the CENTCOM area of operations for **three months** following the conclusion of outpatient mental health treatment and for **12 months** following an inpatient stay for a mental health concern. Using this definition, around 60% or more of the transgender service member cohort remained deployable throughout the 24 months following cohort eligibility. In general, 10% or fewer of the cohort were non-deployable for reasons related to inpatient mental health stays in the two years following initial diagnosis. Similarly, only about 30% of the cohort would have been non-deployable as a result of outpatient mental health contacts unrelated to gender dysphoria in the 24 months following identification as a cohort member through medical administrative data. Importantly, data were not available from non-transgender service members that could serve as a basis for comparison to indicate if

supposed non-deployability rates amongst the transgender cohort differed from the overall non-deployability rate. Results of this analysis are presented below in Figure 3.

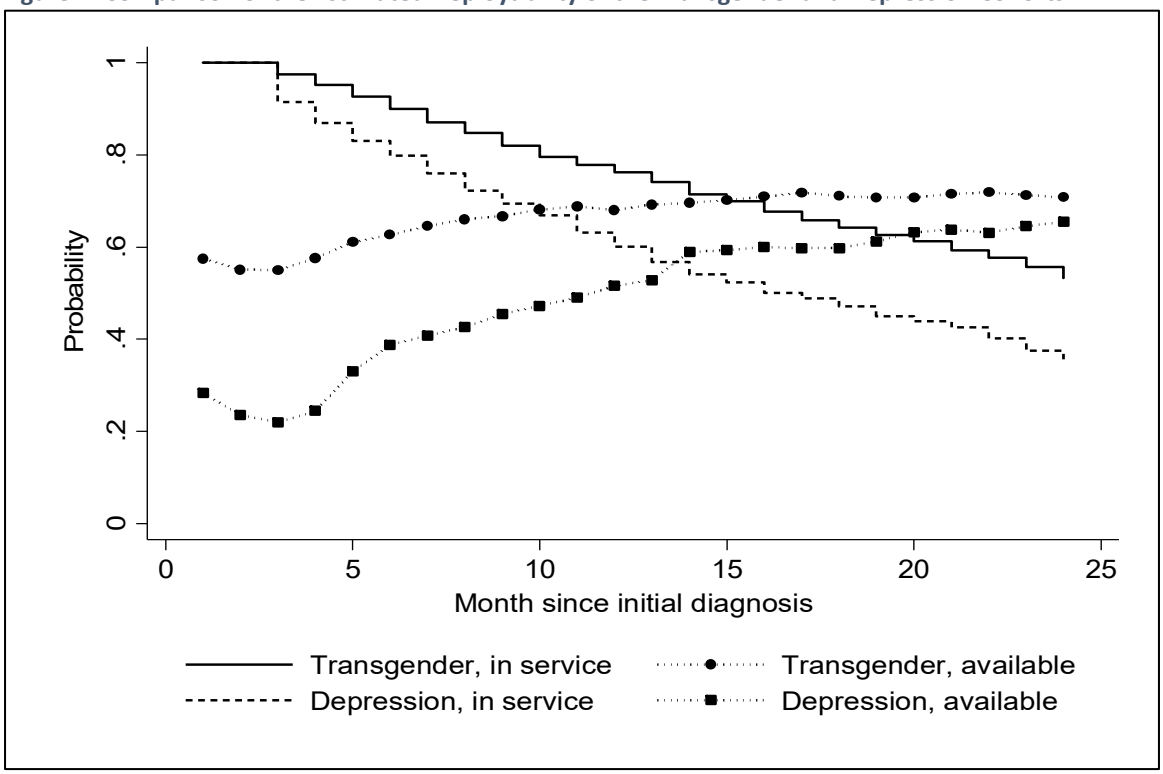
**Figure 3: Estimated Deployability and Non-Deployability amongst Transgender Cohort Members**




Note that Figure 3 also portrays the decreasing proportion of the cohort still in service (the stepped dotted line). As this proportion decreases, certainty around the accuracy of deployability estimates decreases as well.

In order to better contextualize the readiness outcomes of the transgender cohort presented above, analysts examined readiness outcomes amongst the depression cohort. Figure 4, below, shows the proportion of members of each cohort who are still in service as a function of months with cohort-qualifying diagnoses. Figure 4 also presents the proportion of cohort members remaining in service whose deployability we could reasonably expect to be ***unrestricted*** on the basis of outpatient mental health encounters (non-deployable for 3 months following) or inpatient psychiatric admissions (non-deployable for 12 months following inpatient discharge). As noted above, the transgender cohort stayed in service longer, on average, than did the depression cohort. Interestingly, the transgender cohort also had a greater proportion of members available for deployment than the depression cohort. It is noteworthy that the availability curves approach one another toward the end of the 24-month observation period; this may reflect a selection mechanism wherein individuals with more severe problems had been removed from the population by this point in time. Collectively, this analysis suggests that, within the first 24 months following receipt of a cohort-qualifying diagnosis, members of the transgender cohort are more deployable than members of the matched cohort of service members with depressive disorders.

**Figure 4: Comparison of the Estimated Deployability of the Transgender and Depression Cohorts**



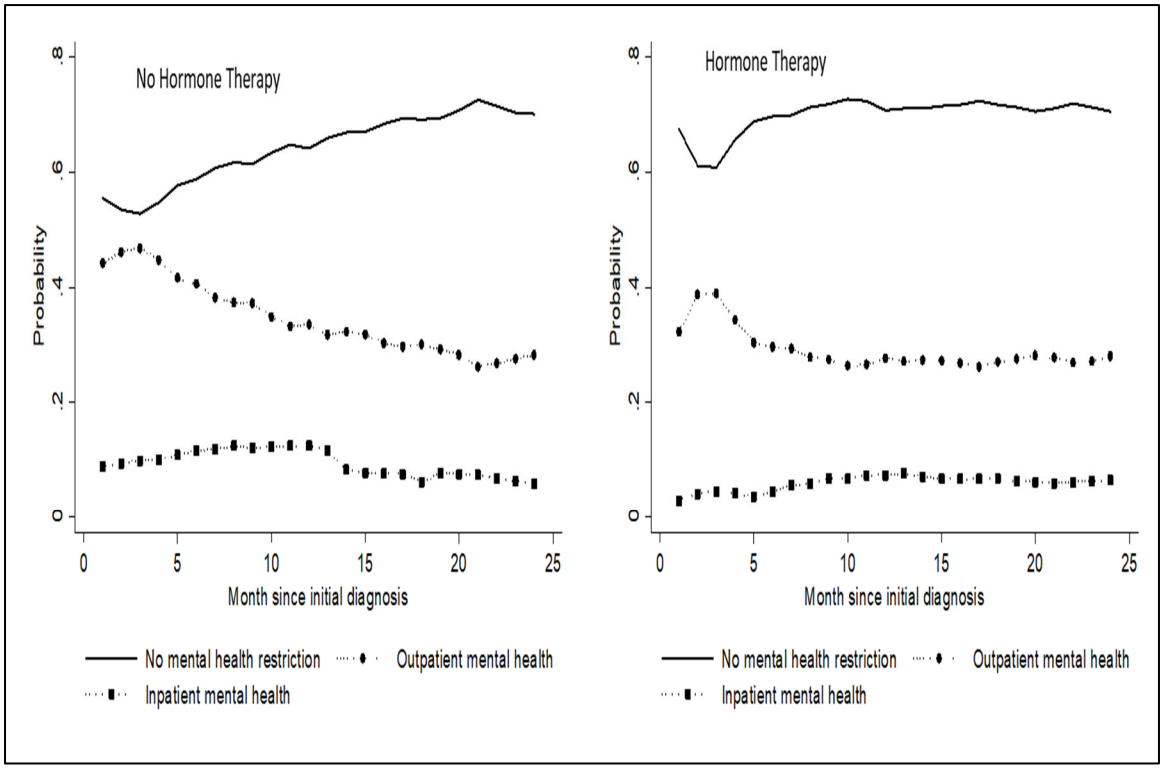

PHCoE also considered transgender service members and hormone therapies since some administration routes impact deployability. Notably, regulations require that transgender service members live for at least 12 months as their preferred gender before initiating hormone therapies. Consequently, we expect that cohort members who were identified more recently (CY2019 or CY2020) would receive hormone therapies at a lower rate. Table 2, below, illustrates the number and proportion of cohort members who have received hormone therapies during the observation period. The table breaks out hormone therapy rates by routes of administration and cohort year. As expected, cohort members identified in CY2019 and CY2020 were less likely to have records of hormone therapy prescriptions. Around 70% of earlier cohorts have received at least one prescription for hormones. Nearly 50% of transgender service members in the 2015-2018 cohorts have received injectable hormones.

**Table 2: Transgender Service Members Receiving Hormone Therapy**

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|
| No Hormone Therapy | 45 (31.7%) | 125 (23.4%) | 167 (31.4%) | 112 (30.1%) | 184 (54.1%) | 162 (75.3%) |
| Capsules Only | 22 (15.5%) | 75 (14.0%) | 68 (12.8%) | 76 (20.4%) | 56 (16.5%) | 26 (12.1%) |
| Injections Only | 28 (19.7%) | 162 (30.3%) | 138 (25.9%) | 87 (23.4%) | 39 (11.5%) | 20 (9.3%) |
| Transdermal Only | 0 (0.0%) | 12 (2.2%) | 16 (3.0%) | 14 (3.8%) | 15 (4.4%) | 1 (0.5%) |
| Capsules and Injections | 20 (14.1%) | 48 (9.0%) | 37 (7.0%) | 17 (4.6%) | 17 (5.0%) | 3 (1.4%) |
| Capsules and Transdermal | 6 (4.2%) | 31 (5.8%) | 33 (6.2%) | 18 (4.8%) | 6 (1.8%) | 1 (0.5%) |
| Injections and Transdermal | 15 (10.6%) | 52 (9.7%) | 54 (10.2%) | 39 (10.5%) | 19 (5.6%) | 2 (0.9%) |
| Capsules, Injections, & Transdermal | 6 (4.2%) | 30 (5.6%) | 19 (3.6%) | 9 (2.4%) | 4 (1.2%) | 0 (0.0%) |

There was no meaningful difference in readiness outcomes between those members of the transgender cohort who received hormone therapy and those who did not. The solid lines in the two graphs in figure 5, below, illustrate the proportions of the transgender cohort receiving and not receiving hormone therapy who have no mental-health-related restrictions on deployability (per CENTCOM standards) at each month following cohort entry. For the most part, there was a 0.6 to 0.7 probability that cohort members in either subgroup would be deployable during the 24-months following cohort entry.

**Figure 5: Deployability Amongst Transgender Cohort Members With and Without Hormone Therapy**




Finally, we identified all members of the transgender cohort who appeared to have pre-accession medical records by virtue of their status as dependent beneficiaries. While 27 individuals were initially identified, data cleaning procedure reduced the total number of cases with pre-accession medical histories that included gender dysphoria to only 7 cases. This number of far too small to make generalizable statements regarding the transgender recruit population as a whole. However, because these 7 cases represent the only data that speak directly to the question of mental healthcare utilization and potential duty limitations amongst transgender service members who were identifiable as such prior to entry into military service, their experience may be illustrative. Table 3 lists each of the seven cases along with the number of months prior to accession since their earliest cohort-qualifying event, the total number of months following accession that they were available for deployment and the total number where they would presumably not have been deployable by virtue of either inpatient or outpatient mental health care.

Table 3:Case Series Analysis of Transgender Cohort Members with Pre-Accession MHS Contacts

| | Months Between Initial Gender Dysphoria Dx and Accession | Months Available for Deployment Following Accession | Months Non-Deployable due to Outpatient Mental Health Treatment Following Accession | Months Non-Deployable due to Inpatient Mental Health Treatment Following Accession |
|---|---|---|---|---|
| Case 1 | 123 | 1 | 4 | 0 |
| Case 2 | 56 | 20 | 37 | 13 |
| Case 3 | 17 | 11 | 14 | 13 |
| Case 4 | 32 | 24 | 8 | 13 |
| Case 5 | 20 | 2 | 0 | 0 |
| Case 6 | 43 | 9 | 0 | 0 |
| Case 7 | 53 | 5 | 0 | 0 |

As the table above illustrates, there was considerable variance in the amount of time prior to accession and after initial gender dysphoria diagnosis within the MHS between the selected cases. If one assumes overlapping inpatient and outpatient episodes of non-deployability then one could make the claim that 4 out of 7 cases spent more time deployable than not. It is important to note, however, that four out of the seven had less than one year of post-accession military service during the observation window, further limiting interpretability of these findings.

## Conclusions

As noted above, the medical administrative data do not speak directly to the question of how long accession waiting periods should be. Instead, these data can be used to identify and follow a cohort of transgender service members and to describe healthcare utilization within the context of readiness and deployability. We estimate that fewer than 40% of the transgender service members identified as part of this study would have been deemed non-deployable due to mental health reasons at some time during the 24 months following initial diagnosis. Members of the transgender cohort were likely to remain in military service longer than were members of a match depression cohort and were less likely to be non-deployable due to their mental health utilization. We also found that, once allowed to begin hormone therapy, upwards of 70% of cohort members have one or more prescription for hormones in the medical record. Importantly, more than 50% of transgender service members in the study had left service in the 24 months following initial diagnosis and this substantially limits our ability to estimate longer-term outcomes related to readiness. Transgender service members with hormone therapy did not appear to differ meaningfully in their deployability from those without hormone therapy.

While these findings may shed some light on transgender service members, their healthcare utilization, and their deployability, data from transgender recruits were not available for analysis. As such, we cannot say with any certainty that the findings described here would apply to a recruit population.

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## Glossary of Relevant Terms

**Binary sex:** The designation of a person at birth as either "male" or "female" based on their based on their anatomy (genitalia and/or reproductive organs) and/or biology (chromosomes and/or hormones).

**Gender or Gender Role:** traditional or stereotypical behaviors often divided into feminine and masculine, as defined by the culture in which they live (e.g. their gender expressions, the careers they pursue, and their duties within a family)

**Gender identity:** A person's innate, deeply-felt psychological identification as a man, woman, or other gender, which may or may not correspond to the person's external body or assigned sex at birth (i.e., the sex listed on the birth certificate).

**Gender expression:** The external manifestation of a person's gender identity, which may or may not conform to the socially-defined behaviors and external characteristics that are commonly referred to as either masculine or feminine.

**Genderqueer:** An umbrella term that includes all people whose gender varies from the traditional norm, akin to the use of the word "queer" to refer to people whose sexual orientation is not heterosexual only; or (2) to describe a subset of individuals who feel their gender identity is neither female or male.

**Gender nonconformity:** Term that refers to the extent to which a person's gender identity, role, or expression differs from the cultural norms prescribed for people of a particular sex (Institute of Medicine, 2011).

**Bigender, Beyond Binary, Non-Binary, Gender fluid, Androgyne:** gender variations other than the traditional, dichotomous view of male and female.

**Transgender:** An umbrella adjective for people whose gender identity and/or gender expression differs from their assigned sex at birth (i.e., the sex listed on their birth certificates)

**Transwoman:** Noun that generally refers to someone who was identified male at birth but who identifies and portrays her gender as female.

**Transman:** Noun that generally refers to someone who was identified female at birth but who identifies and portrays his gender as male.

**Cisgender:** Adjective referring to individuals whose gender identity and gender expression align with their assigned sex at birth (i.e., the sex listed on their birth certificates)

**Gender incongruence:** A sexual health condition classified by the International Classification of Diseases, eleventh edition (ICD-11) denoting a marked and persistent incongruence between an individual's experienced gender and assigned sex.

**Gender dysphoria:** A mental health diagnosis according to the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) that describes a collection of symptoms associated with incongruence between a person's experienced/expressed gender and sex assigned at birth.

**Gender affirming:** Adjective used to refer to behaviors or interventions that affirm a transgender person's gender identity (e.g., a physician using cross-sex hormones for a transgender patient may be called gender affirming, as can the use of a correctly gendered pronoun.)

**Transition:** An individualized process in which transgender people move from living aligned with the sex they were assigned at birth to living aligned with their gender identity. There are three general aspects to transitioning: social (e.g., presentation, relationships, employment, names/pronouns); medical (e.g., hormones, surgery, mental health) and legal (e.g., changing gender marker and name on legal documents and identification). Each person's transition path is unique.

**Gender Affirming Medical Interventions:** Procedures that involve medical providers and typically alter some aspect of physical or biological anatomy or process to better align with gender identity.

**Bottom surgery:** Colloquial phrase to describe gender affirming genital surgery.

**Breast augmentation:** Surgery to enlarge the breasts using breast implants.

**Chest masculinization:** A bilateral mastectomy that removes most of the breast tissue, shapes a contoured male chest, and refines the nipples and areolas.

**Facial feminization surgery:** Includes such procedures as reshaping the nose, and brow or forehead lift; reshaping of the chin, cheek and jaw; Adam's apple reduction; lip augmentation; hairline restoration and earlobe reduction.

**Facial masculinization surgery:** Includes forehead lengthening and augmentation; cheek augmentation, reshaping the nose and chin; jaw augmentation; thyroid cartilage enhancement to construct an Adam's apple.

**Hormone replacement therapy (HRT):** The process in which transgender people choose to take a prescription of synthetic hormones. For transgender women, that may include estrogen as well as testosterone blockers. For transgender men: testosterone (T).

**Metoidioplasty:** A surgical procedure that works with existing genital tissue to form a phallus, or new penis. It can be performed on anyone with significant clitoral growth caused by using testosterone.

**Penile construction/phalloplasty:** The construction of a penis generally includes several procedures that are often performed in tandem. They may include the following: a hysterectomy to remove the uterus, an oophorectomy to remove the ovaries, a vaginectomy to remove the vagina, a phalloplasty to turn a flap of donor skin into a phallus, a scrotectomy to turn the labia majora into a scrotum, a urethroplasty to lengthen and hook up the urethra inside the new phallus, a glansplasty to sculpt the appearance of an uncircumcised penis tip, and a penile implant to allow for erection.

**Top surgery:** Colloquial phrase to describe gender affirming surgery of the chest — either bilateral mastectomy or breast augmentation.

**Vaginal construction/vaginoplasty:** A procedure in which surgeons may remove the penis and testes, if still present, and use tissues from the penis to construction the vagina, clitoris and labia.

# Accession Medical Standards Analysis and Research Activity

# (AMSARA)


## Analysis of Medical Administrative Data on Transgender Service Members

*Phase 4*

7/14/2021

Requested by:
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Prepared in response to:
Accession Medical Standards Working Group (AMSWG) task

## 1. Purpose

In their ongoing efforts to address concerns regarding medical standards for transgender individuals accessing into the U.S. Military, the Accession Medical Standards Working Group (AMSWG) tasked the Psychological Health Center of Excellence (PHCoE) and the Accession Medical Standards Analysis and Research Activity (AMSARA) to investigate any relevant data sources that may suggest appropriate periods of psychological stability prior to enlistment or commissioning. Specifically, four questions were posed by Dr. Ciminera and CAPT Bradford on behalf of the AMSWG:

*1. What are the appropriate periods of stability prior to accession into the military for medical (e.g. surgeries, cross-sex hormone use) and psychological conditions associated with gender dysphoria or a gender transition?*
*2. Do our current accession stability period standards for mental health conditions such as depression or anxiety (typically 36 months of stability following treatment) appropriately inform what we should consider appropriate for gender dysphoria or gender transition?*
*3. Does the evidence show that issues such as cross-sex hormone therapy, not a medical condition, should have an equal period of stability as gender dysphoria?*
*4. What would be the next logical steps for further research into this space to inform DoD medical standards?*

To address these core questions, the PHCoE and AMSARA teams crafted a joint approach that includes four phases:

Phase 1: Initial environmental scan of relevant treatment standards, key literature, and international military standards for military accession by transgender individuals.

- ✓ Completed and presented at the AMSWG meeting, 1 April 2021

Phase 2: Analysis of health care data from an identified cohort of individuals diagnosed with gender dysphoria or undergoing gender transition medical procedures in the military health system.

- ✓ Completed and presented at the AMSWG meeting, 13 May 2021

Phase 3: Comprehensive literature review of psychological stability associated with gender dysphoria, gender transition, and hormone replacement therapy.

- ✓ Submitted as a separate RAH for AMSWG meeting, 22 July 2021

Phase 4: Analysis of administrative and health care data from a cohort of accessions and separations from transgender disqualifications and waivers.

- ✓ Completed in this document and to be presented at the AMSWG meeting, 22 July 2021

## 2. Key Findings

- Transgender service members appear similar to the full military applicant pool in terms of the proportion with history of any pre-accession medical disqualification status as well as the distribution of specific medical disqualifications.
- Rates of adverse attrition and existing prior to service (EPTS) discharge among transgender service members were similar to the total force. However, the rates of disability evaluation were estimated to be higher among TG service members.

## 3. Background

The Accession Medical Standards Analysis and Research Activity (AMSARA) conducted a small complementary analysis with similar cohort identification process to Psychological Health Center of Excellence (PHCoE) to increase the available evidence surrounding transgender service members. These analyses aimed to examine the usability of pre-accession factors and end of service outcomes among transgender service members' as evidence to inform discussions on related to DoD accession policies pertaining to transgender applicants.

## 4. Methods

Following the PHCoE's cohort identification criteria, eligible for inclusion were service members (Army, Navy, Marine Corps, or Air Force) who had a medical encounter for a qualifying transgender (TG) diagnosis between calendar year 2015-2020.[i] Qualifying diagnoses were identified by the presence of an ICD-9/ICD-10 diagnostic code[ii] in the first or second diagnostic position recorded within a medical encounter either in a military treatment facility (MTF) or outside of the MTF system (purchased care). Only service members with a beneficiary category of active duty or guard/reserve on active duty were included, however due to data limitations, this category was derived from the medical record rather than from the Defense Enrollment Eligibility Reporting System (DEERS), which was utilized by the PHCoE.

To supplement in-service outcomes described in the PHCoE study, AMSARA evaluated pre-accession profiles and end of service outcomes among the identified TG cohort. Military Entrance Processing Station (MEPS) medical screening, accession medical waiver, and accession records were utilized to identify pre-accession medical disqualifications, with an emphasis on transgender or psychiatric-related disqualifications. In addition, AMSARA assessed time in service and end of service outcomes, including non-adverse separations (e.g., expiration of term of service, retirement), adverse attrition (e.g., unqualified for active duty, insufficient retainability), disability discharge, and existing prior to service (EPTS) discharge to: 1) supplement the understanding of the end of service among this cohort gained from the PHCoE analyses; and, 2) provide insight on potential stability periods.

U.S. Military Entrance Processing Command (USMEPCOM) provided data on all enlisted applicants for the Army, Navy, Marine Corps, or Air Force in any component, and data on EPTS discharges.

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[i] Transsexualism, Dual Role Transvestism, Gender Identity Disorder Of Childhood, Other Gender Identity Disorders, Gender Identity Disorder, Unspecified, Transvestic Fetishism, Personal History Of Sex Reassignment

[ii] 302.3, 302.6, 302.50, 302.51, 302.52, 302.53, 302.85, F64.0, F64.1, F64.2, F64.8, F64.9, F65.1, Z87.890

Accession and separation records were obtained from the Defense Manpower Data Center (DMDC), medical waiver records for enlisted medical waiver requests were received from the various Service Medical Waiver Authorities, and all disability evaluation records were provided by U.S. Army Physical Disability Agency (USPDA), Secretary of the Navy Council of Review Boards (CORB) and Air Force Personnel Center (AFPC). Medical encounter records were queried from the Military Health Systems Data Repository (MDR).

## 5. Findings

Of the 2,063 service members in the identified cohort, the majority had an accession record in the AMSARA database (94%) and the majority had an application record (94%). Those with a missing accession record could be related to the transactional nature of the data while missing application records is likely due to the service member not applying for enlisted service and therefore not being seen at a Military Entrance Processing Station (MEPS).

A wide range of initial accession years were seen among the cohort (1995-2020), however, 80% initially accessed between fiscal years 2011 and 2020. Among those with an accession record, most initially entered as enlisted (92%) and/or active duty (87%) (Table 1). In contrast, the DMDC reported that, as of May 2021, 82% of the military were enlisted and 62% were active duty.[4] Among the TG cohort, roughly 35% initially accessed into the Army, while 29% joined the Navy, 24% the Air Force, and 7% accessed into the Marine Corps. For comparison, according to the DMDC, the distribution of all fiscal year 2019 accessions was approximately 36% for Army, 24% for Navy, and approximately 20% for both the Air Force and Marine Corps.[4]

Approximately 11% of the cohort were medically disqualified at application (Table 1), which is lower than the proportion of medically disqualified applicants among all applicants (17%).[1] The most common disqualifications fell under the Eyes (23%), Learning, Psychiatric, and Behavioral Disorders (19%), Vision (18%), or Miscellaneous Conditions of the Extremities (10%) subsections of the Department of Defense Instruction (DoDI) 6130.03: Medical standards for appointment, enlistment, or induction into the military services[2] (Table 2). This distribution of disqualifications is consistent with the most common disqualifications among all enlisted applicants.[1] The most common disqualifications among the 42 TG service members with history of a Learning, Psychiatric, and Behavioral Disorder pre-accession medical disqualification were attention-deficit hyperactivity disorders (n=24, 57%), unspecified mental disorder (n=9, 21%), and major depressive disorder (n=7, 17%) (Table 3).

The average time in service to first cohort-qualifying medical encounter was approximately 53 months (± 49 months), although this metric may be skewed due to the large variation of time in service (range of 3 months to 23 years). The median time to their first cohort-qualifying encounter was 38 months, which is typically nearing the end of a service member's first contract obligation (Table 4).

Nearly half of the cohort were still serving at the end of the study period, however, approximately a quarter were adversely separated either via adverse attrition (12%) or EPTS discharge (0.2%) (Table 1). The most common reason for adverse separation, based on inter-service separation codes (ISC), was unqualified for active duty (34%) (Table 5), which is comparable to the proportion of all adverse

separations among all active duty DoD service members who were separated in FY 2020 (roughly 29%).[4] On average, cohort members were adversely discharged about three years after their first qualifying medical encounter. Only three cohort members were discharged due to EPTS in the first 180 days of service, although EPTS data is known to be incomplete and should be considered an underestimate. Reasons for these EPTS discharges were psychiatric-related, including other specified depressive episodes, adjustment disorder with depressed mood, and unspecified gender identity disorder (Table 6). All three service members were discharged between fiscal year 2017 and 2019 (results not shown) approximately six weeks after their first cohort qualifying encounter.

Nearly 12% of the cohort population was evaluated for disability discharge (Table 1), which is larger than the rate of disability evaluation among all service members (roughly 1-2%). On average, cohort members were evaluated for disability about 20 months after their first qualifying medical encounter (Table 7). Approximately 72% of disability evaluated cohort members were subsequently disability retired with 30% or more DoD benefits. Similarly, the most common disability disposition among disability evaluated Soldiers, Sailors and Airmen is disability retirement with a 30% or higher rating.[3] The most commonly evaluated conditions among cohort members (psychiatric 54%, musculoskeletal 28%, neurological 18%) (Table 8) were comparable to those of all service members evaluated for disability[3]. Major depressive disorder and post-traumatic stress disorder accounted for three quarters of the psychiatric conditions (Table 9); however, PTSD and mood disorders (including major depressive disorder) are often among the most common conditions in the full disability population.[3]

## 6. Conclusion

The identified TG cohort present similarly to full applicant pool in terms of pre-accession medical disqualifications. These service members also appear similar to the total force in terms of rates of both adverse attrition and EPTS discharge; however, the proportion of disability discharge is higher. When compared to previous research, TG service members appear to stay in service longer than those who are diagnosed with a psychiatric disorder;[5,6,7] nevertheless, having longer in service time does not equate to deployability. Future research is needed to more thoroughly evaluate in service characteristics including deployment and limited duty.

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**Table 1**: Military Characteristics of the Transgender Cohort at Accession

| | Cohort (N=2,063) | |
|---|---|---|
| **Cohort Entry Calendar Year** | **N** | **%** |
| 2015 | 128 | 6.20% |
| 2016 | 517 | 25.06% |
| 2017 | 523 | 25.35% |
| 2018 | 367 | 17.79% |
| 2019 | 328 | 15.90% |
| 2020 | 200 | 9.69% |
| **First Accession Fiscal Year** | | |
| 1995 | 2 | 0.10% |
| 1996 | 4 | 0.19% |
| 1997 | 3 | 0.15% |
| 1998 | 5 | 0.24% |
| 1999 | 12 | 0.58% |
| 2000 | 12 | 0.58% |
| 2001 | 8 | 0.39% |
| 2002 | 14 | 0.68% |
| 2003 | 22 | 1.07% |
| 2004 | 25 | 1.21% |
| 2005 | 21 | 1.02% |
| 2006 | 29 | 1.41% |
| 2007 | 44 | 2.13% |
| 2008 | 50 | 2.42% |
| 2009 | 61 | 2.96% |
| 2010 | 97 | 4.70% |
| 2011 | 108 | 5.24% |
| 2012 | 135 | 6.54% |
| 2013 | 176 | 8.53% |
| 2014 | 192 | 9.31% |
| 2015 | 245 | 11.88% |
| 2016 | 259 | 12.55% |
| 2017 | 208 | 10.08% |
| 2018 | 138 | 6.69% |
| 2019 | 60 | 2.91% |
| 2020 | 18 | 0.87% |
| No Accession Record | 115 | 5.57% |
| **First Accession Service** | | |
| Army | 714 | 34.61% |
| Navy | 592 | 28.70% |
| Marine Corps | 150 | 7.27% |

| | | |
|---|---|---|
| Air Force | 490 | 23.75% |
| No Accession Record | 115 | 5.57% |
| **First Accession Component** | | |
| Active Duty | 1,789 | 86.72% |
| Reserves | 72 | 3.49% |
| National Guard | 87 | 4.22% |
| No Accession Record | 115 | 5.57% |
| **Rank at First Accession** | | |
| Officer | 58 | 2.81% |
| Enlisted | 1,890 | 91.61% |
| No Accession Record | 115 | 5.57% |
| **Medical Status at Application** | | |
| Qualified | 1,723 | 83.52% |
| Disqualified | 220 | 10.66% |
| No Application Record | 120 | 5.82% |
| **Service Outcome*** | | |
| Still in Service** | 1,003 | 48.62% |
| Adverse Attrition | 247 | 11.97% |
| EPTS Discharge | 3 | 0.15% |
| Disability Evaluation | 243 | 11.78% |
| Non-Adverse Separation | 540 | 26.18% |

* Excludes individuals for whom AMSARA found no accession and no separation record

** As of 30 September 2020

**Table 2**: DoDI Subsections among those Transgender Cohort Medically Disqualified at Application

| | Medically Disqualified (N=220) | |
|---|---|---|
| **DoDI Subsection*** | **N** | **%** |
| Head | 0 | 0.00% |
| Eyes | 51 | 23.18% |
| Vision | 39 | 17.73% |
| Ears | 1 | 0.45% |
| Hearing | 0 | 0.00% |
| Nose, Sinuses, Mouth, and Larynx | 1 | 0.45% |
| Dental | 1 | 0.45% |
| Neck | 1 | 0.45% |
| Lungs, Chest Wall, Pleura, and Mediastinum | 14 | 6.36% |
| Heart | 2 | 0.91% |
| Abdominal Organs and Gastrointestinal System | 0 | 0.00% |
| Female Genital System | 12 | 5.45% |
| Male Genital System | 6 | 2.73% |
| Urinary System | 4 | 1.82% |
| Spine and Sacroiliac Joint Conditions | 6 | 2.73% |
| Upper Extremities | 7 | 3.18% |
| Lower Extremities | 16 | 7.27% |
| Miscellaneous Conditions of the Extremities | 22 | 10.00% |
| Vascular System | 1 | 0.45% |
| Skin and Cellular Tissue Conditions | 12 | 5.45% |
| Blood and Blood Forming Conditions | 3 | 1.36% |
| Systemic Conditions | 12 | 5.45% |
| Endocrine and Metabolic Conditions | 5 | 2.27% |
| Rheumatologic Conditions | 3 | 1.36% |
| Neurologic Conditions | 3 | 1.36% |
| Sleep Disorders | 0 | 0.00% |
| Learning, Psychiatric, and Behavioral Disorders | 42 | 19.09% |
| Tumors and Malignancies | 1 | 0.45% |
| Miscellaneous Conditions | 19 | 8.64% |
| Transgender | 1 | 0.45% |

* Includes waiver data, subsections are not mutually exclusive so individuals can be count more than once in the table but only once per subsection. Also, excludes those with a disqualification code that cannot be mapped to the DoDI Subsections.

**Table 3**: Most Common Disqualifications among those Transgender Cohort Medically Disqualified at Application under Learning, Psychiatric, and Behavioral Disorders DoDI Subsection

| | Medically Disqualified (DoDI Subsection 28) (N=42) | |
|---|---|---|
| **Learning, Psychiatric, and Behavioral Disorders Disqualifications*** | **N** | **%** |
| Attention-deficit hyperactivity disorders (F90) | 24 | 57.14% |
| Mental disorder, not otherwise specified (F99) | 9 | 21.43% |
| Major depressive disorder (F32) | 7 | 16.67% |
| Dysthymic disorder (F34.1) | 3 | 7.14% |
| Cannabis abuse (F12.1) | 2 | 4.76% |
| Unspecified mood [affective] disorder (F39) | 2 | 4.76% |
| Other anxiety disorders (F41) | 2 | 4.76% |
| Impulse disorders (F63) | 2 | 4.76% |
| Underweight (R63.6) | 2 | 4.76% |
| Personal history of self-harm (Z91.5) | 2 | 4.76% |
| Specific developmental disorders of speech and language (F80) | 1 | 2.38% |
| Asperger's syndrome (F84.5) | 1 | 2.38% |
| Problems related to lifestyle (Z72) | 1 | 2.38% |

* Disqualifications are not mutually exclusive so individuals can be count more than once in the table but only once per disqualification.

**Table 4**: Months from Accession to Cohort Entry

| | Cohort with Accession Record (N=1,948) |
|---|---|
| **Quantile** | **Months** |
| 100% Max | 274 |
| 99% | 228 |
| 95% | 160 |
| 90% | 119 |
| 75% Q3 | 71 |
| 50% Median | 38 |
| 25% Q1 | 17 |
| 10% | 9 |
| 5% | 7 |
| 1% | 3 |
| 0% Min | 0 |
| **Months from Accession to Cohort Entry (mean±SD)*** | 52.96±48.68 |

* Calculated only among those in the TG cohort with an accession record in AMSARA's data.

**Table 5**: End of Service Characteristics among the Transgender Cohort who have Adversely Separated

| | Cohort Adversely Separated (N=247) | |
|---|---|---|
| **ISC Code** | **N** | **%** |
| Unqualified for Active Duty - Other (1016, 2016) | 83 | 33.60% |
| Drugs (1067) | 31 | 12.55% |
| Commission of a Serious Offense (1084) | 20 | 8.10% |
| Expeditious Discharge/Unsatisfactory Performance (1086) | 17 | 6.88% |
| Discreditable Incidents - Civilian or Military (1065) | 15 | 6.07% |
| Pattern of Minor Disciplinary Infractions (1083) | 13 | 5.26% |
| Other (1099) | 13 | 5.26% |
| Character or Behavior Disorder (1060) | 12 | 4.86% |
| Failure to Meet Minimum Qualifications for Retention (1085) | 11 | 4.45% |
| Alcoholism (1064) | 7 | 2.83% |
| Trainee Discharge/Entry Level Performance and Conduct (1087) | 5 | 2.02% |
| Erroneous Enlistment or Induction (1091) | 4 | 1.62% |
| Good of the Service (in lieu of Court Martial) (1078) | 4 | 1.62% |
| Court Martial (1073) | 3 | 1.21% |
| Unfitness or Unacceptable Conduct (Other) (2081) | 2 | 0.81% |
| Failure of Selection for Promotion (2079) | 2 | 0.81% |
| Fraudulent Entry (1074) | 2 | 0.81% |
| Failure of Course of Instruction (2063) | 1 | 0.40% |
| Secretarial Authority (1090) | 1 | 0.40% |
| Sexual Perversion (1077) | 1 | 0.40% |
| **Months from Cohort Entry to Separation (mean±SD)*** | 33.33±36.41 | |

* Calculated only among those in the TG cohort identified as adversely separated.

**Table 6**: Characteristics of Existed Prior to Service Discharge among the Transgender Cohort

| | Cohort with an EPTS Record (N=3) | |
|---|---|---|
| **ICD Code** | **N** | **%** |
| Other specified depressive episodes (F32.89) | 1 | 33.33% |
| Adjustment disorder with depressed mood (F43.21) | 1 | 33.33% |
| Gender identity disorder, unspecified (F64.9) | 1 | 33.33% |
| **Days from Cohort Entry to Discharge (mean±SD)*** | 41.67±41.02 | |

* Calculated only among those in the TG cohort identified as having and EPTS discharge.

**Table 7**: Characteristics of Disability Evaluation among the Transgender Cohort

| | Cohort with a Disability Record (N=243) | |
|---|---|---|
| **Disability Disposition** | **N** | **%** |
| Retired* | 175 | 72.02% |
| Separated with severance | 46 | 18.93% |
| Separated w/out benefits | 8 | 3.29% |
| Fit | 13 | 5.35% |
| Other | 1 | 0.41% |
| **Percent Rating Categories**** | | |
| <30% | 48 | 21.62% |
| ≥30% (disability retirement) | 174 | 78.38% |
| **# of Conditions Evaluated (mean±SD)***** | 1.45±0.93 | |
| **Months from Cohort Entry to Disability Evaluation (mean±SD)***** | 20.43±13.30 | |

* Retired category is made up of PDRL, TDRL, retained on TDRL

** Excludes unrated and missing

*** Calculated only among those in the TG cohort with a disability evaluation record.

**Table 8**: VASRD Categories among the Transgender Cohort with a Disability Evaluation

| | Cohort with a Disability Record (N=243) | |
|---|---|---|
| **VASRD Categories*** | **N** | **%** |
| Psychiatric | 131 | 53.91% |
| Musculoskeletal | 68 | 27.98% |
| Neurological | 43 | 17.70% |
| Digestive | 6 | 2.47% |
| Genitourinary | 4 | 1.65% |
| Dermatologic | 3 | 1.23% |
| Cardiovascular | 3 | 1.23% |
| Respiratory | 3 | 1.23% |
| Endocrine | 2 | 0.82% |
| Infectious Disease | 2 | 0.82% |
| Eyes and Vision | 1 | 0.41% |
| Hemic/Lymphatic | 1 | 0.41% |

* VASRD categories are not mutually exclusive so individuals can be count more than once in the table but only once per category.

**Table 9**: VASRD Codes among the Transgender Cohort with a Disability Evaluation within the Psychiatric Category

| | Cohort with a Psychiatric VASRD Code (N=131) | |
|---|---|---|
| **VASRD Codes*** | **N** | **%** |
| Major depressive disorder (9434) | 52 | 39.69% |
| Post-traumatic stress disorder (9411) | 47 | 35.88% |
| Chronic adjustment disorder (9440) | 18 | 13.74% |
| Bipolar disorder (9432) | 12 | 9.16% |
| Generalized anxiety disorder (9400) | 5 | 3.82% |
| Dissociative amnesia; dissociative fugue, dissociative identity disorder (9416) | 1 | 0.76% |
| Panic disorder and/or agoraphobia (9412) | 1 | 0.76% |
| Somatization disorder (9421) | 1 | 0.76% |
| Specific (simple) phobia (9403) | 1 | 0.76% |

* VASRD codes are not mutually exclusive so individuals can be count more than once in the table but only once per code.

# Analysis of Medical Administrative Data on Transgender Service Members

Accession Medical Standards Analysis and Research Activity (AMSARA)

Medical Standards Analytics and Research (MSAR)

Statistics and Epidemiology Branch

Walter Reed Army Institute of Research

WRAIR
Walter Reed Army Institute of Research

# AMSARA TG Studies

- Study #1
  - January 2018 accession policy change enabled to identify TG population:
    - TG Disqualification: N=24
    - TG Accession: N=1
  - No follow up studies were possible
  - Report presented at the AMSWG meeting, May 2021
- Study #2
  - Complementary administrative data analysis:
    - PHCoE TG cohort N=2,063
      - AD SMs with TG diagnosis from 2015 to 2020
    - Accession characteristics:
      - Data sources: MEPS medical screening, medical waivers and accession records
      - Data points: all medical, TG and psychiatric DQs
    - End of service outcomes:
      - Data sources: loss, disability and EPTS records
      - Data points: non-adverse separations, adverse attrition, disability and EPTS discharges
  - Examined pre-accession factors and end of service outcomes among TG SMs
  - Report presented at the AMSWG meeting, July 2021

# Results

| | | TG % | All Accessions ~ % |
|---|---|---|---|
| Accession Characteristics | Medical DQ | 11 | 17 |
| | Enlisted | 92 | 82 |
| | Active Duty | 87 | 62 |
| In Service Characteristics | Army | 35 | 36 |
| | Navy | 29 | 24 |
| | Air Force | 24 | 20 |
| | Marine Corps | 7 | 20 |
| End of Service Outcomes | Adverse Attrition | 12 | 12* |
| | Disability Evaluation | 12 | 1.5 |
| | EPTS Discharge | 0.2 | 0.9 |

* Within 3 years of accession

# Findings: Characteristics

- 80% of TG cohort initially accessed: FY11 - FY20
  - Comparing cohort to all AD
    - Higher % of enlisted (92 vs 82) and AD (87 vs 62)
    - Slightly higher % of Navy and AF, but much lower % of Marines
- Approximately 11% DQ'd at application
  - Slightly lower % of medically DQ'd at application than all AD (11 vs 17)
- Most common DQ's among TG cohort were: Eyes, Psych, Vision
  - Similar when compared to all AD
- Among the TG cohort DQ'd for psych
  - Most common DQ's were ADHD (60%), unspecified mental disorder (20%), and major depressive disorder (17%)
- Median time in service to the first TG encounter: 38 months

# Findings: Outcomes

- TG: evaluated for disability ~20 months after their first TG encounter
- TG vs. All SM:
  - Similar adverse attrition and EPTS discharge
  - Higher disability evaluation (12 vs 1-2)
    - Similar % of retired with ≥30% disability (~72)
    - Similar most common evaluated conditions
      - Psychiatric, MSK, neurological
        - TG evaluated for psych disability: MDD and PTSD
        - All SM evaluated for psych disability: PTSD and mood disorders
- TG vs. SMs diagnosed with a psychiatric disorder:
  - Stay in service longer
  - NB: Longer in service time does not equate to deployability

# Key Findings

- Comparison of TG vs. all SMs:
  - Similar
    - Proportion with history of any pre-accession medical DQ status
    - The distribution of specific medical DQs
    - Rates of adverse attrition
    - EPTS discharge
  - Higher in TG SMs
    - Disability evaluation

**Compilation of Published Materials for Recommendations related to Transgender Applicants regarding Medical/Psychological Stability**

*Specific questions from Dr. Ciminera and CAPT Bradford:*

*a) What are the appropriate periods of stability prior to accession into the military for medical (e.g. surgeries, cross-sex hormone use) and psychological conditions associated with gender dysphoria or a gender transition?*

**Gender Nonconformity, Gender Dysphoria, Stigma and Associated Psychological Conditions**

"Gender nonconformity refers to the extent to which a person's gender identity, role, or expression differs from the cultural norms prescribed for people of a particular sex" (Williams, Patete & Thaller, 2019). Given that there is stigma attached to gender nonconformity in many societies, it can lead to prejudice and discrimination, resulting in "minority stress" (Meyer, 2003), which is unique, socially based, and chronic, and may make transsexual, transgender, and gender-nonconforming individuals more vulnerable to developing anxiety and depressive disorders (Institute of Medicine (US), 2011).

Minority stress plays a role in transgender individuals' lives, because of the psychological damage caused by stigma, discrimination, and transphobia (McCann & Brown, 2018). By acknowledging the impact of minority stress, researchers and clinicians can avoid pathologizing and blaming transgender folks for the higher rates of psychological issues that they experience (Scandurra, Amodeo, & Valerio, 2017). "Transgender individuals may also experience provider-generated discrimination in health care facilities, including refusal of service, disrespect, and abuse, which contribute to depression and low self-esteem" (Smith, 2016). Transgender individuals experience risk factors related to discrimination by others such as limited access to services such as housing, healthcare, and financial supports that are necessary to meet physical and emotional needs (McCann & Brown, 2018). The effects of discrimination are also seen in the workplace, as it can affect employment status and financial stability, social isolation and exclusion (McCann & Brown, 2018). Physical safety concerns are also reported among the transgender community as causing psychological distress and are a realistic threat (McCann & Brown, 2018). Of the documented hate violence against members of the LGBTQ community in 2017, 32% of survivors were transgender (National Coalition of Anti-Violence Programs, 2018). Of the 52 documented hate violence homicides of LGBTQ people in 2017, 52% ($n = 27$) were transgender or gender non-conforming (National Coalition of Anti-Violence Programs, 2018). Further, a majority ($n = 22$) of transgender people who were killed in 2017 were trans women of color (National Coalition of Anti-Violence Programs, 2018). Societal and medical barriers along with discrimination are also associated with increased risks of violence, suicide, suicide attempts, substance use disorders and sexually transmitted infections, including higher prevalence of HIV infection (Learmonth, 2018; Williams, Patete & Thaller, 2019). This combination of high medical needs and barriers to accessing appropriate care may give rise to a self-perpetuating cycle of risk exposure, stigmatization, prejudice, and eventually poor health outcomes (Williams, Patete & Thaller, 2019). In their analysis of a large, population-based sample, Gonzales and Henning-Smith (2017) found that the transgender and gender nonconforming adults were more

likely to be uninsured and have unmet health care needs, and were less likely to have routine care, compared to cisgender (non-transgender) women (Gonzales & Henning-Smith, 2017).

In general, transition-related medical interventions positively impact mental health and quality of life. However, few studies measured transition-related medical interventions over time and at specific time intervals. Only recently have there been initiatives to standardize outcome measurements for transition-related medical interventions. Historically, comparisons between groups and outcomes were difficult due to the use of non-validated instruments (e.g., Andréasson, Geogas, Elander, & Selvaggi, 2018). Three large or cohort-based European studies (Bränström & Pachankis, 2020; Van de Grift et al., 2017; White Hughto, & Reisner, 2016) and one US-based study provided information on outcomes (Hughto, Gunn, Rood, & Pantalone, 2020).

Of note, many European countries have universal healthcare infrastructure and access for transgender individuals, which may be more transferable to the military healthcare context than the civilian United States system. Bränström and Panchankis (2020) examined healthcare utilization longitudinally from a national Swedish register and found that a sample of 2,679 individuals who received a gender incongruence diagnosis were, at baseline and in general, were more likely to receive treatment for mood or anxiety disorder; however, the treatment gap reduced based on time since last gender-affirming surgery. The likelihood of being treated for mental health treatment reduced by 8% for each year after gender-affirming surgery. Transgender individuals were equally likely over time to be hospitalized after a suicide attempt (approximately .08% compared to .01% of the general population) and were more likely than the general population to be hospitalized, but the rates were generally low. Gender dysphoria may not be related as strongly to overall psychological functioning as body satisfaction (e.g., Van de Grift et al., 2017). Baseline and outcome experiences of transition-related medical interventions are significantly impacted by a variety of mechanisms, included the cultural context, structural barriers to healthcare and other basic needs, and social support (e.g., White Hughto, Reisner, & Pachankis, 2015). Another major limitation to research on effectiveness is that other non-medical, gender affirming interventions often co-occurred with medical interventions, which can also have a significant positive impact on treatment outcomes (e.g., Hughto et al., 2020). It follows that gender dysphoria as a diagnosis may not be useful as a determinant for overall functioning and focusing on making the environment affirming can itself improve outcomes.

There are a few medical options for gender transition and treatment of gender dysphoria frequently associated with gender nonconformity. "In recent years, puberty suppression by means of gonadotropin-releasing hormone analogs has become accepted in clinical management of adolescents who have gender dysphoria (GD)" (de Vries et al., 2014). "The puberty-suppressing hormones are used in early adolescents and may continue for a few years, at which time a decision is made to either discontinue all hormone therapy or transition to a feminizing/masculinizing hormone regimen" (WPATH, 2012), which may or may not follow by gender reassignment surgical procedures. "Pubertal suppression is considered as a fully reversible intervention and does not inevitably lead to social transition or to sex reassignment" (WPATH, 2012). According to Crall and Jackson (2016), "gender-affirming hormone therapy is a safe and effective way to improve quality of life and mental health outcomes for transgender adolescents. Access to this treatment is limited, with the most vulnerable transgender people

experiencing the greatest gaps in care" (Crall & Jackson, 2019). In their review article Mahfouda et al. concluded that the scarce and preliminary available evidence indicates that gender-affirming cross-sex hormones (CSHs) are associated with mental health benefits and improved quality-of-life outcomes in eligible transgender adolescents, but additional studies are needed to improve the quality of the evidence base (Mahfouda et al., 2018).

In 1998, the WPATH (2012) "Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People" guidelines stated that surgical interventions (e.g., vaginoplasty in transgender females, gonadectomy in transgender males) should not be done in patients younger than age 18 years (Mahfouda et al., 2018). However, due to common infertility in those with the disorder of sex development who develop gender dysphoria, physicians are more willing to perform cross-sex hormone treatments and genital surgery before adulthood (DSM-5, p. 456). Mahfouda et al. (2019) listed several preliminary studies that showed benefits of gender-affirming surgery in adolescents, particularly bilateral mastectomy in transgender adolescent males (Marinkovic & Newfield, 2017; Olson-Kennedy et al., 2018), but indicated a scarcity of literature to guide clinical practice for surgical vaginoplasty in transgender adolescent females (Mahfouda et al., 2018). The authors emphasized that the optimal age and developmental stage for initiating cross-sex hormones (CSHs) and performing gender-affirming surgeries remains to be clarified. They recommended that clinical decisions on eligibility should be considered on an individualized basis. This recommendation was informed by Endocrine Society Practice Guidelines (Hembree et al., 2017), the WPATH SoC (Coleman et al, 2012), and other expert consensus including the Australian SoC and Treatment Guidelines for Transgender and Gender Diverse Children and Adolescents (Telfer et al., 2018), until further data become available (Mahfouda et al., 2018).

The WPATH recommends "12 continuous months of living in a gender role that is congruent with their gender identity before meeting criteria for some types of genital surgeries." The recommendation is "based on expert clinical consensus that this experience provides ample opportunity for patients to experience and socially adjust in their desired gender role, before undergoing irreversible surgery". "Social aspects of changing one's gender role are usually challenging— often more so than the physical aspects. Changing gender role can have profound personal and social consequences, and the decision to do so should include an awareness of what the familial, interpersonal, educational, vocational, economic, and legal challenges are likely to be, so that people can function successfully in their gender role" (WPATH, 2012).

"Gender dysphoria refers to discomfort or distress that is caused by a discrepancy between a person's gender identity and that person's sex assigned at birth along with the associated gender role and/or primary and secondary sex characteristics" (Fisk, 1974; Knudson, De Cuypere, & Bockting, 2010; WPATH, 2012). According to the DSM-5, gender dysphoria as a general descriptive term refers to an individual's affective/cognitive discontent with the assigned gender, but is more specifically defined when used as a diagnostic category:

Gender Dysphoria in Adolescents and Adults (ICD-9: 302.85, ICD-10: F64.1)

A. A market incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months' duration, manifested by at least two of the following:

1. A marked incongruence between one's experienced/expressed gender and primary and/or secondary sex characteristics.
2. A strong desire to be rid of one's primary and/or secondary sex characteristics because of a marked incongruence with one's experienced/expressed gender.
3. A strong desire for the primary and/or secondary sex characteristics of the other gender.
4. A strong desire to be of the other gender.
5. A strong desire to be treated as the other gender.
6. A strong conviction that one has the typical feelings and reactions of the other gender.

B. The condition is associated with clinically significant distress or impairment in social, occupational, or other important area of functioning (DSM-5, pp. 451-453).

According to Kilpatrick's et al. (2019) conclusion after the completion of their study exploring a link between cross sex hormone treatment and a reversal of cerebral patterns associated with gender dysphoria, "gender dysphoria may be associated with specific anatomical features in own-body/self-processing circuits that reverse to the pattern of cisgender controls after cross-sex hormone treatment" (Kilpatrick, 2019).

**Development of Gender Dysphoria**

"Only some gender-nonconforming people experience gender dysphoria at some point in their lives," but the level of distress in a subset of these people "may meet criteria for a formal diagnosis that might be classified as a mental disorder" (WPATH, 2012). "Although not all individuals will experience distress as a result of incongruence, many are distressed if their desired physical interventions by means of hormones and/or surgery are not available" (DSM-5, p. 451). "Such distress may, however, be mitigated by supportive environment and knowledge that biomedical treatments exist to reduce incongruence" (DSM-5, p. 455).

"Gender dysphoria can in large part be alleviated through treatment (Murad et al., 2010). Hence, while transsexual, transgender, and gender-nonconforming people may experience gender dysphoria at some points in their lives, many individuals who receive treatment will find a gender role and expression that is comfortable for them, even if these differ from those associated with their sex assigned at birth, or from prevailing gender norms and expectations" (WPATH, 2012).

The DSM-5 differentiates two broad trajectories for development of gender dysphoria in both adolescent and adult natal males: early onset and late onset. "Early-onset gender dysphoria starts in childhood and continues into adolescence and adulthood; or, there is an intermittent period in which the gender dysphoria desists and these individuals self-identify as gay or homosexual, followed by recurrence of gender dysphoria. Late-onset gender dysphoria occurs around puberty or much later in life. Some of these individuals report having had a desire to be of the other gender in childhood that was not expressed verbally to others. Others do not recall any signs of childhood gender dysphoria. For adolescent males with late-onset gender dysphoria, parents often report surprise because they did not see signs of gender dysphoria during childhood. Expressions of anatomic dysphoria are more common and salient in adolescents and adults once

secondary sex characteristics have developed" (DSM-5, pp. 455-456). "Among adult natal males with gender dysphoria the early-onset group seeks out clinical care of hormone treatment and reassignment surgery at an earlier age than does the late-onset group. The late-onset group may have more fluctuations in the degree of gender dysphoria and be more ambivalent about and less likely satisfied after gender reassignment surgery. In both adolescent and adult natal females, the most common course is the early-onset form of gender dysphoria. The late-onset form is much less common in natal females compared with natal males. As in natal males with gender dysphoria, there may have been a period in which the gender dysphoria desisted and these individuals self-identified as lesbian, however, with recurrence of gender dysphoria, clinical consultation is sought, often with the desire for hormone treatment and reassignment surgery. Parents of natal adolescent females with late-onset form also report surprise, as no signs of childhood gender dysphoria were evident. Expressions of anatomic dysphoria are much more common and salient in adolescents and adults than in children" (DSM-5, p. 456).

Functional consequences of gender dysphoria in adolescents and adults are various and as stated in the DSM-5 include preoccupation with cross-gender wishes that often interferes with daily activities. "Relationship difficulties, including sexual relationship problems, are common, and functioning in school or at work may be impaired. Gender dysphoria, along with atypical gender expression, is associated with high levels of stigmatization, discrimination, and victimization, leading to negative self-concept, increased rates of mental disorder comorbidity, school dropout, and economic marginalization, including unemployment, with attendant social and mental health risks, especially in individuals from resource-poor family backgrounds. In addition, these individuals' access to health services and mental health services may be impeded by structural barriers, such as institutional discomfort or inexperience in working with this patient population" (DSM-5, p. 458).

**Prevalence of Gender Dysphoria**

As stated in the DSM-5, the prevalence of gender dysphoria for natal adult males ranges from 0.005% to 0.014%, and for natal females, from 0.002% to 0.003%. "Since not all adults seeking hormone treatment and surgical reassignment attend specialty clinics, these rates are likely modest underestimates. Sex differences in rate of referrals to specialty clinics vary by age group" (DSM-5, p. 454). "In adolescents, the sex ratio is close to parity; in adults, the sex ratio favors natal males, with ratios ranging from 1:1 to 6.1:1" (DSM-5, p. 454). "Rates of persistence of gender dysphoria from childhood into adolescence or adulthood vary. In natal males, persistence has ranged from 2.2% to 30%. In natal females, persistence has ranged from 12% to 50%" (DSM-5, p. 455). DSM-5 concludes that "it is unclear if particular therapeutic approaches to gender dysphoria in children are related to rates of long-term persistence. Extant follow-up samples consisted of children receiving no formal therapeutic intervention or receiving therapeutic interventions of various types, ranging from active efforts to reduce gender dysphoria to a more neutral, "watchful waiting" approach. It is unclear if children "encouraged" or supported to live socially in the desired gender will show higher rates of persistence, since such children have not yet been followed longitudinally in a systematic manner" (DSM-5, p. 455).

**Gender Transition and Gender Dysphoria Treatment**

In their small study, Cohen-Kettenis and van Goozen investigated postoperative functioning of the first 22 consecutive adolescent transsexual patients of their gender clinic who underwent sex reassignment surgery. Postoperatively the group was no longer gender-dysphoric; they scored in the normal range with respect to a number of different psychological measures and they were socially functioning quite well. Not a single subject expressed feelings of regret concerning the decision to undergo sex reassignment (Cohen-Kettenis & van Goozen, 1997). Long-standing clinical observations in transgender children and adolescents from the VU University Medical Centre in Amsterdam, the Netherlands, however, found that gender dysphoria did not change, despite extensive therapeutic efforts (Kreukels BP, Cohen-Kettenis, 2011; Mahfouda et al., 2018).

While there is a lack of formal prospective studies on persistence of adolescent gender dysphoria into adulthood, all 70 adolescents diagnosed with gender dysphoria and given puberty-suppressing hormones in the de Vries et al. follow up study continued with actual sex reassignment, beginning with feminizing/masculinizing hormone therapy (de Vries et al., 2010). Many, but not all, adolescents with gender dysphoria have a strong desire to pursue hormone therapy and surgery (WPATH, 2012). "While many individuals need both hormone therapy and surgery to alleviate their gender dysphoria, others need only one of these treatment options and some need neither" (Bockting, Knudson & Goldberg, 2006; Bockting, 2008; Lev, 2004). "Some patients may need hormones, a possible change in gender role, but not surgery; others may need a change in gender role along with surgery, but not hormones." According to Bartolucci's et al. study results of 67 male-to-female and 36 female-to-male gender-dysphoric adults, perception of sexual Quality of Life before genital sex reassignment surgery in about 50% of study subjects was either "poor/dissatisfied" or "very poor/very dissatisfied" with better subjective perception in those receiving hormonal treatment (Bartolucci, 2014).

"It is difficult to determine the effectiveness of hormones alone in the relief of gender dysphoria. Most studies evaluating the effectiveness of masculinizing/feminizing hormone therapy on gender dysphoria have been conducted with patients who have also undergone sex reassignment surgery. Favorable effects of therapies that included both hormones and surgery were reported in a comprehensive review of over 3,000 patients in 79 studies (mostly observational) conducted between 1961 and 1991 (Eldh, Berg, & Gustafsson, 1997; Gijs & Brewaeys, 2007; Murad et al., 2010; Pfäfflin & Junge, 1998). Patients operated on after 1986 did better than those before 1986; this reflects significant improvement in surgical complications (Eldh, Berg, & Gustafsson, 1997). Most patients have reported improved psychosocial outcomes, ranging between 87% for MtF patients and 97% for FtM patients" (Green & Fleming, 1990; WPATH, 2012, Appendix D).

Similar improvements were found in a Swedish study in which "almost all patients were satisfied with sex reassignment at 5 years, and 86% were assessed by clinicians at follow-up as stable or improved in global functioning" (Johansson et al., 2010). Weaknesses of these earlier studies are their retrospective design and use of different criteria to evaluate outcomes. A prospective study conducted in the Netherlands evaluated 325 consecutive adult and adolescent subjects seeking sex reassignment (Smith et al., 2005). Patients who underwent sex reassignment therapy (both hormonal and surgical intervention) showed improvements in their mean gender dysphoria

scores, measured by the Utrecht Gender Dysphoria Scale. Scores for body dissatisfaction and psychological function also improved in most categories. Fewer than 2% of patients expressed regret after therapy. Overall, studies have been reporting a steady improvement in outcomes as the field becomes more advanced" (WPATH, 2012, Appendix D).

"Often with the help of psychotherapy, some individuals integrate their trans- or cross-gender feelings into the gender role they were assigned at birth and do not feel the need to feminize or masculinize their body. For others, changes in gender role and expression are sufficient to alleviate gender dysphoria" (WPATH, 2012).

In other words, gender identities and expressions are diverse and treatment for gender dysphoria has become more individualized" (WPATH, 2012), which makes it even harder to estimate one fits all precise stability period. Moreover, an adolescent's shift towards gender conformity can occur, but primarily to please the parents and may not persist or reflect a permanent change in gender dysphoria (Hembree et al., 2009; Steensma et al., 2011).

Gender reassignment therapy can alter external sexual features to resemble those of the desired gender and are broadly classified into two types, female to male (FTM) and male to female (MTF). These therapies include hormonal treatment as well as surgical procedures. The terms for these surgical interventions vary and include gender-affirming surgery (GAS), gender-affirming genital reconstructive surgery (GRS), sex reassignment surgery (SRS) etc. FTM genital reconstructive therapy includes creation of a neophallus, which can be achieved by metoidioplasty or phalloplasty with mastectomy, along with testosterone administration. Facial masculinization surgeries (FMS) comprise of forehead lengthening/augmentation, cheek augmentation, rhinoplasty, chin recontouring, jaw contouring, thyroid cartilage enhancement etc.

MTF gender reassignment surgery includes complete removal of external genitalia with penectomy and orchiectomy, with vaginoplasty, clitoroplasty, labiaplasty, and breast augmentation along with estrogen supplements. Penile inversion vaginoplasty is the gold surgical standard for genital gender-affirming surgery in transgender women. In absence of sufficient penoscrotal skin, due to penoscrotal hypoplasia, circumcision, penile trauma with loss of penile skin quantity and/or quality, or when primary vaginoplasty has failed, intestinal vaginoplasty can be performed. Facial feminization surgeries (FFS) include any combination of scalp advancement, cranioplasty, brow lift, rhinoplasty, upper lip lift, mandibuloplasty, chondrolaryngoplasty, and/or additional cosmetic procedures.

"Since the *Standards of Care* have been in place, there has been a steady increase in patient satisfaction and decrease in dissatisfaction with the outcome of sex reassignment surgery. Studies conducted after 1996 focused on patients who were treated according to the *Standards of Care*. The findings of Rehman and colleagues (1999) and Krege and colleagues (2001) are typical of this body of work; none of the patients in these studies regretted having had surgery, and most reported being satisfied with the cosmetic and functional results of the surgery. Even patients who develop severe surgical complications seldom regret having undergone surgery. Quality of surgical results is one of the best predictors of the overall outcome of sex reassignment (Lawrence, 2003). The vast majority of follow-up studies have shown an undeniable beneficial effect of sex reassignment surgery on postoperative outcomes such as

subjective wellbeing, cosmesis, and sexual function (De Cuypere et al., 2005; Garaffa, Christopher, & Ralph, 2010; Klein & Gorzalka, 2009), although the specific magnitude of benefit was uncertain". "One troubling report (Newfield et al., 2006) documented lower scores on quality of life (measured with the SF-36) for FtM patients than for the general population. A weakness of that study is that it recruited its 384 participants by a general email rather than a systematic approach, and the degree and type of treatment were not recorded. Study participants who were taking testosterone had typically being doing so for less than 5 years. Reported quality of life was higher for patients who had undergone breast/chest surgery than for those who had not ($p<.001$). (A similar analysis was not done for genital surgery.) In other work, Kuhn and colleagues (2009) used the King's Health Questionnaire to assess the quality of life of 55 transsexual patients at 15 years after surgery. Scores were compared to those of 20 healthy female control patients who had undergone abdominal/pelvic surgery in the past. Quality of life scores for transsexual patients were the same or better than those of control patients for some subscales (emotions, sleep, incontinence, symptom severity, and role limitation), but worse in other domains (general health, physical limitation, and personal limitation)" (Kuhn et al., 2009; WPATH, 2012 Appendix D).

"For transgender adults who choose to proceed with gender-affirming surgery and meet eligibility criteria, psychological benefits and improvements in quality-of-life outcomes have been documented. Positive findings have been observed with bilateral mastectomy (van de Grift et al., 2016) and genital gender-affirming surgery (Wierckx et al., 2011) in transgender men, and facial feminization procedures (Ainsworth & Spiegel, 2010) and vaginoplasty (Bouman et al., 2016) in transgender women. However, findings from a multicenter European study (Smith, van Goozen & Cohen-Kettenis, 2001) showed that minor regret (n=2) or disappointment (n=6) has been reported (entire sample=136) in transgender adults, although these feelings were predominantly related to postsurgical medical, functional, or aesthetic issues."(Mahfouda et al., 2018)

Bouman et al. (2016) performed a survey study with thirty-one transgender women (median age at time of surgery = 19.1 years, range = 18.3-45.0 with median clinical follow-up of 2.2 years, range = 0.8-7.5) who underwent primary total laparoscopic intestinal vaginoplasty with at least 1 year of clinical follow-up. These relatively young transgender women reported satisfactory functional and esthetic results of the neovagina and a good quality of life, despite low Female Sexual Function Index scores (Bouman et al., 2016).

Gender-affirming surgery in transgender adolescents younger than 18 years are of particular interest given the high prevalence of 18 to 20 years old in the applicants' population. "From the literature, gender affirming surgery that has been done in adolescents includes chest wall masculinization (bilateral mastectomy) in transgender males, and vaginoplasty in transgender females. Transgender adolescent males often describe functional limitations and psychological distress from having breasts (e.g., discomfort from binding breasts, limitations on choice of physical activity and clothing, difficulty in being recognized as male) and present a convincing argument for accessing the top procedure. Breast augmentation is less frequently requested in the transgender female adolescent" (Mahfouda et al., 2018).

**Gender Dysphoria following Gender Affirming Surgery**

"Cohen-Kettenis and colleagues (Cohen-Kettenis & van Goozen, 1997) were the first to explore postoperative functioning in transgender adolescents (n=19; 14 transgender males, 5 transgender females; mean age 17·5 years) in 1997. Compared with before surgery, gender dysphoria was markedly reduced when the sample was assessed postoperatively, after a mean of 2.6 years. 40% of transgender males expressed satisfaction with their breast removal, 50% were moderately satisfied, and 10% were dissatisfied with the result. Disappointment about the visibility of the scars was the main reason for dissatisfaction with the breast removal. 80% of transgender males felt comfortable baring their chest. Overall, postsurgical body satisfaction was reported in 60% of transgender males (40% felt neutral), and 100% of transgender females. Transgender female patients in this sample had undergone vaginoplasty; however, young transgender males had been advised to postpone genital surgery because of improvements to surgical methods" (Mahfouda et al., 2018).

"A subsequent prospective follow-up study (Smith, van Goozen & Cohen-Kettenis, 2001) by the same research group evaluated the next consecutive 20 patients (13 transgender male, seven transgender female; mean age 16.6 years) that underwent gender-affirming surgery in adolescence (treatment group) and were assessed again in adulthood (at approximately age 21 years). Posttest scores of anxiety, depression, and hostility in the treatment group were lower than at pre-surgery, but no significant changes were observed with respect to psychological functioning. Post-surgery scores were similar to age-matched peers from the cisgender population."

"In a retrospective observational study (Marinkovic & Newfield, 2017), the psychological and physical effects of chest surgery were examined in a sample of transgender adolescent males (n=14, mean age at surgery 17.2 years). All patients were in the advanced phases of pubertal development at the time of surgery (Tanner Stage V). Depending on breast size, the surgical technique used was either a keyhole approach (n=4; smaller breast volume) or a double incision procedure (n=10). Almost all transgender adolescents had been on testosterone therapy at the time of the surgery. Mean postsurgical aesthetic and comfort satisfaction score, as assessed on a 1–5 Likert scale, was 4.9 (5=highest satisfaction). Before surgery, all but one adolescent had a history of depression or anxiety, or both, and ten adolescents had a history of deliberate self-harm. Postsurgical scores assessing mental health, available for ten of the adolescents, indicated that one patient continued to experience high levels of depression, but almost all patients subjectively reported improvements in symptoms. Postsurgical complications were high, as 36% (n=5) of the sample had adverse scar outcomes" (Mahfouda et al., 2018). "In a study (Van de Grift et al., 2017) exploring surgical satisfaction in transgender people (n=132), eight cases of surgical dissatisfaction were reported, two of which were in transgender adolescents (none <18 years)" (Mahfouda et al., 2018).

"Olson-Kennedy and colleagues (Olson-Kennedy et al., 2018) examined chest dysphoria in transgender male young people who had either undergone surgical chest reconstruction (postsurgical group; n=68, mean age at time of surgery 17.5 years) or had not (non-surgical group; n=68, mean age 17 years). The non-surgical group had significantly higher levels of chest dysphoria than the postsurgical group and were often functionally limited; 47% (n=32) avoided

exercise, 60% (n=41) felt intimacy was difficult, and 59% (n=40) felt life had not started because of how they felt towards their chest. One participant from the postsurgical group, older than 18 years at the time of the surgery, reported occasional regret. The data on adolescents are consistent with findings from the transgender adult literature, which showed that chest dysphoria decreased substantially following bilateral mastectomy or chest wall masculinization, or both, and measures of quality of life improved" (Agarwal et al. 2018; Mahfouda et al., 2018).

"A qualitative study (Milrod & Karasic, 2017) investigated attitudes and experiences of US surgeons affiliated with WPATH (n=20) towards vaginoplasty in transgender females younger than 18 years. Although anecdotal and news reports indicate that vaginoplasties have been done in transgender females younger than 18 years (Winter, 2006), published data are almost non-existent. Results from the qualitative study indicated that over half of the respondents had performed vaginoplasty in transgender females younger than 18 years, with the youngest patient aged 15 years. Approximately a third of respondents regarded the WPATH SoC16 minimum eligibility threshold for vaginoplasty as appropriate, whereas the remainder endorsed a case-by-case approach. The most common surgical technique used was one-stage penile inversion vaginoplasty, most often augmented by a full thickness scrotal graft. The technique is not always viable in cases of penoscrotal hypoplasia, which can occur as a consequence of puberty suppression treatment in the early Tanner stages of puberty. In such cases, it is unclear whether alternative surgical methods such as bowel interposition vaginoplasty or use of tissue expanders yield equivalent outcomes. Psychological maturity was perceived as more important than age in adolescent patient selection, particularly in relation to understanding the stressors of undergoing surgery and the expectations of postoperative self-care, including commitment to a dilation schedule to maintain neovaginal patency. Reasons for agreeing to perform vaginoplasty in a minor included: a request for the full transition to be complete before entering work force or college, a potential for a patient outcome to be compromised once at college or work (e.g., busy schedule makes it difficult to adhere to postoperative self-care), support of their families (can ensure the minor adheres to postoperative dilation schedule), patient still living at home (importance of a safe and affirmative environment to recuperate), benefits might outweigh risks in transgender females entering college or very sensitive social roles" (Mahfouda et al., 2018).

Based on such an extensive range in variability of possible approaches to alleviate gender dysphoria and/or other psychosocial aspects of gender nonconformity, it is challenging to determine an appropriate stability period prior to accession into the military without individual consideration of a particular gender nonconformity/transformation path. Moreover, finalizing transition may not completely alleviate dysphoria as the DSM-5 differentiates posttransition gender dysphoria, which could occur in individuals transitioned to full-time living in the desired gender (with or without legalization of gender change) and has undergone (or is preparing to have) at least one cross-sex medical procedure or treatment regimen – namely, regular cross-sex hormone treatment or gender reassignment surgery confirming the desired gender (DSM-5, p. 453).

A precise length of such stability period cannot be derived from the existing literature as it also greatly varies and depends on a combination of multiple factors involving severity of gender dysphoria at the baseline, time of its onset, psychiatric comorbidity, as well as the complexity and length of the gender affirmation approaches that have been completed and/or further

planned, or the lack of their availability. According to the DSM-5, "persistence of gender dysphoria is modestly correlated with dimensional measures of severity ascertained at the time of a childhood baseline assessment. In one sample of natal males, lower socioeconomic background was also modestly correlated with persistence" (DSM-5, p. 455).

Another indeterminate factor is an estimation when the transition is complete as there is a possibility of more interventions that would bring a person physical characteristics even closer to their desired gender. Long lasting history of minority stress may create additional vulnerability in trans-gender applicant population and negatively affect their medical readiness and resilience after accession.

The disqualifying aspects of various surgeries and their subsequent stability periods are also determined by the extent of surgical invasiveness, likelihood, timing and severity of complications, along with post-operational length and requirements that are already adequately addressed in the applicable body systems of the DoDI 6130.03 V1. However, given the gender affirmation surgeries' (GAS) complexity along with increasing variability of their techniques and incidence in the past few years, they deserve additional considerations. Thus, AMSARA has expanded the initial literature search to additionally focus on and determine the prevalence and severity of the GAS complications. Some of these surgeries are reported to be highly prevalent and include urethral complications reaching 39% after phalloplasty (Remington et al., 2018: Mahfouda, 2018). Ascha et al. reported 31.5% and 32.8% overall urethral complication rate for radial forearm free flap and anterolateral thigh pedicled flap phalloplasty with 3.4% and 7.8% of respective rate of partial or total neophallus loss (Ascha et al., 2017). "Whilst only a part of the process in gender transitioning, chest reconstruction is important as it is frequently the initial surgical procedure" and enables those with large breasts to more easily live as their self-identified gender. Mastectomy is historically associated with high rates of both complication and revision surgery to include hematoma, infection, seroma, fistula, or partial necrosis of nipple-areola complex reported in third of the patients (Kääriäinen et al., 2016). "The larger the breast, poorer the skin quality, and greater the amount of excess skin, the longer the required incision and resulting scar is for mastectomy of female-to-male patients. Hematoma is the most common reason for acute reoperation and secondary corrections are often needed" (Kääriäinen et al., 2016). More moderately prevalent complications include granulation tissue (26%), intravaginal scarring (20%), and prolonged pain (20%) among those who underwent penile inversion vaginoplasty (Massie et al., 2018) with the incidence of any immediate (<30 days) and delayed (>30 days and <6 months) vaginoplasty postoperative event at 19% and 25% respectively (Ferrando, 2020), and overall neovaginal complication with the rate of 32.5% (Dreher et al., 2018). Severity of the complications range from temporary self-resolving minor issues to those creating major discomfort and/or functional impairment and, therefore, requiring repeated surgeries for various reasons to include reconstructive surgery for complications such as urethral strictures, urethrocutaneous fistulae, vaginal remnant etc. (Geolani et al., 2019). Reoperation rate after mastectomy is 8.8% with hematoma as the most frequent reason (Kääriäinen et al., 2016). A neovaginal reoperation rate was reported at 21.7% for non-esthetic reasons, with the stenosis of the neo-meatus (14.4%) as the most common, according to review and meta-analysis of 125 articles performed by Dreher et al (Dreher et al., 2018). The overall incidence of reoperation/revision was 7.9% (n = 19) with reasons for reoperation included cosmesis (3.8%), neovaginal stenosis (2.1%;), and wound dehiscence (0.8%), with less than 0.5% reoperations for

meatal stenosis, hematoma or rectovaginal fistula reported by Levy at al. (2019) for 240 penile-inversion vaginoplasty performed by a single surgeon at a large academic institution. "Patients who developed minor postoperative complications following penile inversion vaginoplasty were more likely to require revision surgery to address functional and aesthetic concerns. Patients responded with high levels of satisfaction following revision procedures, with the majority of patients reporting resolution of genital-related dysphoria."

Bouman et al. (2014) in their review of 21 studies on intestinal vaginoplasty including a total of 894 patients, determined that the prevalence and severity of procedure-related complications were low with main postoperative complication composed of introital stenosis, necessitating surgical correction in 4.1% of sigmoid-derived and 1.2% of ileum-derived vaginoplasties; however, all these studies had a retrospective design and were reported to be of low quality. In their later (2016) study Bouman et al. reported results from 42 transgender women who underwent total laparoscopic sigmoid vaginoplasty as primary vaginal reconstruction with the mean age at the time of surgery: 21.1 ± 4.7 and follow-up time: 3.2 ± 2.1 years. One patient died as a result of an extended-spectrum beta-lactamase-positive necrotizing fasciitis leading to septic shock, with multi-organ failure. Direct postoperative complications that needed laparoscopic reoperation occurred in three cases and long-term complications needed a secondary correction took place in seven cases. After 1 year, all patients had a functional neovagina so the total laparoscopic sigmoid vaginoplasty was reported to have a similar complication rate as other types of elective laparoscopic colorectal surgery (Bouman et al., 2016).

The complication prevalence and severity are largely depending on the MTF vs FTM types of surgeries, surgical techniques, surgeon experience (decreased after performing 50 surgeries per Ferrando, 2020), prior surgeries etc. "Evidence from the transgender adult literature indicates that phalloplasty has very high complication rates, with one recent retrospective study (n=149) citing urethral complications in approximately a third (n=47) of cases. Given the comparative complexity of phalloplasty over vaginoplasty (penile inversion technique), in future studies, vaginoplasty will probably continue to be associated with a more favorable postsurgical outcome" (Mahfouda et al., 2018).

Surgical complications are reported to be more prevalent after the gender affirming surgeries compared to cisgender surgeries (Remington et al., 2018) and need to be considered in terms of possible impact on military service and wellbeing of prospective Service Members whose health will likely endure multiple challenges in a line of duty.

While GAS are important in the treatment of gender dysphoric patients, a moderate to high complication rate reported in the literature and its postulated impact on success of the military service should be taken under advisement. The variability in techniques and standards in reporting complications makes it difficult to assess accurately the true prevalence and even more so to incorporate it into a risk assessment necessary for establishing a concrete evidence-based stability period before accession.

The mean surgery age reported in studies varies greatly and, depending on the search restrictions, ranges from around 19 through 58 with more studies in 30 to 40 years range. Such a wide age distribution and predominance of adults in their 30th and older is not unexpected. The

transgender individuals start on M/F hormones at 16-18 and a year of stability is required before a surgery. Furthermore, the cost of surgical procedures, lack of insurance coverage, possible delay in surgical referrals resulting from insufficient transgender healthcare knowledge among healthcare providers, lack of highly experienced surgeons specializing in GAS, along with reported stigma and discrimination may contribute to pursuing surgeries mostly starting in late twenties. In particular, the transgender individuals experience multiple barriers to accessing care related to medical transition, including a shortage of providers, health insurance programs that categorically exclude the provision of gender-affirming hormones and surgery (Barcelos, 2019) or provide insufficient coverage, which limit comprehensive care (Leinung et al., 2016) along with time-consuming and frustrating process to confirm coverage (Zaliznyak, 2021) or difficulties to secure it (Learmonth et al., 2018). Participants of a small study reported several similar barriers toward receiving GAS: financial (73%), finding a physician (65%), and access to information (63%) (El-Hadi et al, 2018). Survey results from 406 transgender or gender-nonconforming adults who live in Colorado indicate that 40% of respondents report delaying medical care due to cost, inadequate insurance, and/or fear of discrimination (Christian et al., 2018). Moreover, while plastic surgeons are most likely to perform GAS compared to other specialties, the geographic distribution of surgeons, does not match the distribution of patients (Cohen et al, 2020).

The mean age at surgeries in some studies, however, could be skewed to the right by the surgeries in older adults and the median age of surgeries is not always reported. Currently, the prevalence of post GAS applicants might not be expected to be very high given that the predominant age of enlisted military application is close to 20, but the age of GAS could be decreasing in the future.

For practical reasons, a period of stability after surgery is preferable to calculate when it is based on the date of release from the surgical service rather than from the date of surgery since all surgical procedures have different recovery time and rate of complications. However, in retrospect this time point could be more challenging to establish precisely compared with the date of surgery. Some transgender surgeries are somewhat similar to or comparable with cisgender procedures and, therefore, have already been addressed in the relevant sections of the DoDI 6130.03 V1, from which the corresponding established stability periods could be derived. The other surgical interventions are very specific to the transgender and have no precedence in or relevance to the existing post-surgical disqualifications listed in the DoDI. Some of the surgeries also tend to be more invasive, complicated, and require highly skilled and experienced surgeons in these specific procedures. The rapid increase of such surgeries only in the last two decades affords a comparatively shorter time period to perfect and establish adequate surgical techniques with the lowest likelihood of complications and the evidence-based support for their prevention and management. The aforementioned historic uniqueness, individual variability, and unprecedented complexity of some gender affirming surgeries makes it extremely difficult if not impossible to recommend any averaged arbitrary time of post-surgical stability based on the current literature search. While no particular determination of length is being offered for stability period, it seems that individual review of performed surgical procedures, their complexities and complications will provide a much better chance to estimate the risk of future attrition.

Johansson et al. (2010) in their five-year follow-up study of Swedish adults with gender identity disorder "evaluated the outcome of sex reassignment as viewed by both clinicians and patients, with an additional focus on the outcome based on sex and subgroups. Of a total of 60 patients approved for sex reassignment, 42 (25 male-to-female [MF] and 17 female-to-male [FM]) transsexuals completed a follow-up assessment after 5 or more years in the process or 2 or more years after completed sex reassignment surgery. Twenty-six (62%) patients had an early onset and 16 (38%) patients had a late onset. At index and follow-up, a semi-structured interview was conducted. At follow-up, 32 patients had completed sex reassignment surgery, five were still in process, and five-following their own decision-had abstained from genital surgery. No one regretted their reassignment. The clinicians rated the global outcome as favorable in 62% of the cases, compared to 95% according to the patients themselves, with no differences between the subgroups. Based on the follow-up interview, more than 90% were stable or improved as regards work situation, partner relations, and sex life, but 5-15% were dissatisfied with the hormonal treatment, results of surgery, total sex reassignment procedure, or their present general health. Most outcome measures were rated positive and substantially equal for MF and FM. Late-onset transsexuals differed from those with early onset in some respects: these were mainly MF (88 vs. 42%), older when applying for sex reassignment (42 vs. 28 years), and non-homosexually oriented (56 vs. 15%). In conclusion, almost all patients were satisfied with the sex reassignment; 86% were assessed by clinicians at follow-up as stable or improved in global functioning" (Johansson et al., 2010).

Also there is no evidence-based theoretical or practical approach that could be offered to determine whether applicants will decide to undergo any/any further gender affirming surgical procedure(s) after their accession. The non-disclosure of such intentions in the applicant pool might likewise become a significant issue for readiness and drive up the health care cost.

18 month time period has been implemented by the Memorandum (OUSD Memo, 2017) effective 1 January 2018 – this specific population has been identified but could not be followed given extremely small prevalence of disqualifications and only one accession (AMSARA TG research report for AMSWG, May 2021).

Elders, Brown, Coleman, Kolditz, and Steinman (2014) summarize and challenge four common notions to justify barring transgender individuals from Service which are actually not supported by research and not internally consistent with other DoD policies and populations. These four notions are (pp. 4-5):

> *(1) transgender personnel are too prone to mental illness to serve, (2) cross-sex hormone therapy is too risky for medical personnel to administer and monitor, (3) gender-confirming surgery is too complex and too prone to postoperative complications to permit, and (4) transgender personnel are not medically capable of safely deploying.*

The most notable challenge to these assumptions is falsely equating transgender identity with mental health disorders, which has become a debunked connection broadly in the medical field. In addition, there are a number of other conditions that require hormone treatment which do not bar service or deployment for other groups, including: dysmenorrhea, endometriosis, menopausal syndrome, chronic pelvic pain, and renal or voiding dysfunctions. In addition, the authors cite that 1.4% of all US Service Members report taking prescribed anabolic steroids. The authors conclude that the transgender bar is inconsistent with current medical understanding and relies

on assumptions that are either unfounded or inconsistent with other standards for conditions affecting predominately cisgender individuals.

Sufficient time of stability in a preferred gender is needed before such major life changes as rigorous military training and demanding service requirement can be successfully physically, psychologically and socially endured.

The limited and varying findings in the literature reviewed here are not sufficient to determine appropriate periods of stability associated with gender dysphoria or gender transition. Studies reported social, economic and medical barriers, prejudice, stigma, discrimination and occasional poor surgical outcomes as potential factors that could contribute to psychological conditions for which transgender or gender non-conforming individuals may be vulnerable. Additionally, stability periods were not elucidated for individuals who choose hormone treatment compared to those who underwent gender-affirming procedures. Other areas needing further study and follow-up include the age of onset of gender dysphoria and how age may or may not be associated with psychological conditions.

Conclusion:

With each individual's experience with transition and gender-affirming treatment being unique, an individualized approach to determining readiness seems appropriate. With the lack of compelling evidence for a stability period before accession into the military, it might be prudent to proceed with a more conservative than 18 months requirement, currently in effect. This approach may help to ascertain a population for an individual review and waiver consideration by Service waiver authorities in order to evaluate and estimate a risk of non-deployability and adverse attrition.

The stability period of 36 months is in alignment with stability periods indicated in DoDI 6130.03 Volume 1: Learning, Psychiatric, and Behavioral Disorders section for existing or comorbid depressive and anxiety disorders, more prevalent in those with gender dysphoria. There is a lack of evidence that gender dysphoria in isolation predicts non-deployability or adverse attrition. Further, as research cited in this document suggest, not all gender non-conforming individuals choose any type of treatment.

*b) Do our current accession stability period standards for mental health conditions such as depression or anxiety (typically 36 months of stability following treatment) appropriately inform what we should consider appropriate for gender dysphoria or gender transition?*

"Mental health concerns, including anxiety disorders (de Vries et al., 2011), and suicidal ideation (Strauss et al., 2017) are much more prevalent in transgender young people than in the cisgender population (people in whom sex assigned at birth corresponds with gender identity). The clinical consensus is that poor mental health is often a consequence of the incongruence between sex assigned at birth and gender identity, and that stigma, bullying, and family non-acceptance are also important contributing factors (Strauss et al., 2017). In transgender adults, gender-affirming cross-sex hormones (CSHs) and surgical interventions have been associated with a substantial reduction in psychological distress and body dysphoria, and improvements in quality of life (Van

de Grift et al., 2017; Agarwal et al. 2018; Owen-Smith et al., 2018; Gorin-Lazard et al., 2013). Only two studies have investigated the potential for gender affirming CSHs to improve mental health outcomes and alleviate body dysphoria in transgender adolescents. De Vries (2014) and colleagues assessed gender dysphoria, body satisfaction, and psychological functioning in 55 transgender adolescents at baseline (T0), during puberty suppression (T1), and in adulthood, following CSH for all at age 16 years, and gender-affirming surgery for some (T2). Compared with T0 and T1 scores, a substantial decrease was observed in gender dysphoria at T2. Both transgender males and females also reported significantly less dissatisfaction with primary and secondary sexual characteristics, less psychopathology, and improved global functioning, with quality of life similar to age-matched cisgender peers (de Vries et al., 2014). A limitation of the study was that gender dysphoria and psychological functioning were not assessed during intervention with CSHs only, which was before surgical intervention in adulthood for many participants, so it was not possible to disentangle the psychological benefits of CSHs from that of surgical interventions. Importantly, these participants were originally from a larger cohort (n=70), whose outcomes following puberty suppression in adolescence were reported previously (de Vries et al., 2010). The findings of De Vries and colleagues could be overly optimistic because of the high levels of bias with respect to study participation and study attrition" (Chew et al., 2018; Mahfouda et al., 2018).

"A study that acknowledged the high rate of problematic weight management behaviours in transgender adolescents assessed body dissatisfaction and disordered eating in gender non-conforming youth (n=50) (Guss et al., 2017). Transgender adolescent females and males were found to have significantly more symptoms of disordered eating than their cisgender peers when assessed at baseline. However, at 6 months, participants who had commenced gender affirming CSHs (n=18) had lower levels of body dissatisfaction and less disordered eating behaviours than those who had not yet received treatment. The data complemented findings from an adult transgender health service in the UK (n=563) (Jones et al., 2018), where individuals receiving gender-affirming hormones showed less disordered eating psychopathology than those who had not yet received treatment" (Mahfouda et al., 2018).

"Collectively, the findings from the very small amount of data available suggest that gender-affirming hormones are associated with improvements in gender dysphoria or mental health, or both, in transgender adolescents, which is consistent with the findings in the literature for transgender adults (Gorin-Lazard et al., 2013). The evidence presented by De Vries and colleagues for absence of regret and high quality of life is based on a cohort that commenced CSHs at age 16 years, but clear findings were not obtained as to whether starting CSHs at a younger age could result in different outcomes" (Mahfouda et al., 2018).

"Two long-term observational studies, both retrospective, compared the mortality and psychiatric morbidity of transsexual adults to those of general population samples (Asscheman et al., 2011; Dhejne et al., 2011). An analysis of data from the Swedish National Board of Health and Welfare information registry found that individuals who had received sex reassignment surgery (191 MtF and 133 FtM) had significantly higher rates of mortality, suicide, suicidal behavior, and psychiatric morbidity than those for a non-transsexual control group matched on age, immigrant status, prior psychiatric morbidity, and birth sex (Dhejne et al., 2011). Similarly, a study in the Netherlands reported a higher total mortality rate, including incidence of suicide, in both pre- and

post-surgery transsexual patients (966 MtF and 365 MtF) than in the general population of that country (Asscheman et al., 2011). Neither of these studies questioned the efficacy of sex reassignment; indeed, both lacked an adequate comparison group of transsexuals who either did not receive treatment or who received treatment other than genital surgery. Moreover, transsexual people in these studies were treated as far back as the 1970s. However, these findings do emphasize the need to have good long-term psychological and psychiatric care available for this population." (WPATH, 2012, Appendix D)

A secondary data analysis of medical records from the Veteran Health Administration (N=32,441), comparing suicide, homicide, and all-cause mortality rates, indicated that transgender Veterans were significantly more likely to complete suicide than the cisgender comparison group and cisgender Veterans were significantly more likely to die from all-cause mortality (Boyer, Youk, Haas, Brown, Shipherd, Kauth, Jasujaa, & Blosnich, 2021). Similar to the Bränstrom and Pachankis (2020) study, suicide completion was still a low-base rate behavior despite significant differences between groups (.8% versus .2% in the cisgender group). Of note, all-cause mortality was higher in the cisgender population in ages 40-64 (19.9% versus 13.6% in the transgender group) and >65 (40.3% versus 25.7% in the transgender group).

The DSM-5 also states that adolescents and adults with gender dysphoria are not only at increased risk for suicidal ideation, suicide attempts, and suicides before gender reassignment, but adjustment after gender reassignment may also vary and suicide risk may persist (DSM-5, p. 454). "Impairment (e.g. school refusal, development of depression, anxiety, and substance abuse) may be a consequence of gender dysphoria" (DSM-5, p. 455).

Of note, New Zealand Defense Force requires one year of stability after completion of gender transition plan before accessing into the military (MS-PER-REC-001: NZDF Recruit Health Standards). The Canadian Armed Forces does not have a specific stabilization requirement and emphasizes the individualization of gender transition plans.

Conclusion:

36 months stability period for gender dysphoria is consistent with other symptomatically similar psychiatric disorders, which can also be present as comorbid. In particular, adolescents with gender dysphoria were reported to have a higher likelihood of coexisting internalizing disorders such as anxiety and depression (DSM-5, p. 459), and/or externalizing disorders such as oppositional defiant disorder (de Vries et al., 2011). While these comorbid psychiatric disorders are associated with decreased medical readiness and increased attrition, they are disqualifying and separately applicable per the DoDI 6130.03 V1. Because individuals labeled with gender dysphoria may also have comorbid psychiatric disorders already covered by DoDI 6130.03 V1, we recommend maintaining the 36-month stability period for symptomatically similar psychiatric disorders in general. This accession policy would cover individuals who suffer from a psychiatric disorder related to gender dysphoria already.

*c) Does the evidence show that issues such as cross-sex hormone therapy, not a medical condition, should have an equal period of stability as gender dysphoria?*

"Feminizing/masculinizing hormone therapy—the administration of exogenous endocrine agents to induce feminizing or masculinizing changes—is a medically necessary intervention for many transsexual, transgender, and gender-nonconforming individuals with gender dysphoria (Newfield, 2006; Pfäfflin & Junge, 1998). Some people seek maximum feminization/masculinization, while others experience relief with an androgynous presentation resulting from hormonal minimization of existing secondary sex characteristics" (Factor & Rothblum, 2008; WPATH, 2012).

The WPATH 'Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People' lists the following criteria for feminizing/masculinizing hormone therapy: (1) Persistent, well-documented gender dysphoria; (2) Capacity to make a fully informed decision and to give consent for treatment; (3) Age of majority in a given country (if younger, follow the SOC for children and adolescents); (4) If significant medical or mental concerns are present, they must be reasonably well controlled (WPATH, 2012)

"Hormone therapy must be individualized based on a patient's goals, the risk/benefit ratio of medications, the presence of other medical conditions, and consideration of social and economic issues. Hormone therapy can provide significant comfort to patients who do not wish to make a social gender role transition or undergo surgery, or who are unable to do so (Meyer III, 2009). Hormone therapy is a recommended criterion for some, but not all, surgical treatments for gender dysphoria" (WPATH, 2012)

The WPATH 'Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People' outlines a few aspects that need to be considered for hormone therapy provided for non-medical condition:

1) Changes caused by hormone therapy: "most physical changes, whether feminizing or masculinizing, occur over the course of two years. The amount of physical change and the exact timeline of effects can be highly variable."
2) Risk of hormone therapy: "All medical interventions carry risks. The likelihood of a serious adverse event is dependent on numerous factors: the medication itself, dose, route of administration, and a patient's clinical characteristics (age, comorbidities, family history, health habits). It is thus impossible to predict whether a given adverse effect will happen in an individual patient"
3) Ongoing medical monitoring: "regular physical and laboratory examination to monitor hormone effectiveness and side effects"
4) Regimen: "Clinicians can provide a limited (1-6 month) prescription for hormones while helping patients find a provider who can prescribe long-term hormone therapy. Providers should assess a patient's current regimen for safety and drug interactions and substitute safer medications or doses when indicated."

In 1998, WPATH (2012) guidelines stated that "gender-affirming cross sex hormones (CSHs) were accessible for eligible candidates from age 16 years, but these candidates were encouraged

to delay the decision until adulthood, but now prescribed to transgender people younger than age 16 years in some centers" (Mahfouda et al., 2018)

**TABLE 2 from WPATH: RISKS ASSOCIATED WITH HORMONE THERAPY.**
**HIGHLIGHTED ITEMS ARE CLINICALLY SIGNIFICANT.**

| Risk Level | Feminizing hormones | Masculinizing hormones |
|---|---|---|
| Likely increased risk | Venous thromboembolic disease[A]<br>Gallstones<br>Elevated liver enzymes<br>Weight gain<br>Hypertriglyceridemia | Polycythemia<br>Weight gain<br>Acne<br>Androgenic alopecia (balding)<br>Sleep apnea |
| Likely increased risk with presence of additional risk factors[B] | Cardiovascular disease | |
| Possible increased risk | Hypertension<br>Hyperprolactinemia or prolactinoma | Elevated liver enzymes<br>Hyperlipidemia |
| Possible increased risk with presence of additional risk factors[B] | Type 2 diabetes[A] | Destabilization of certain psychiatric disorders[C]<br>Cardiovascular disease<br>Hypertension<br>Type 2 diabetes |
| No increased risk or inconclusive | Breast cancer | Loss of bone density<br>Breast cancer<br>Cervical cancer<br>Ovarian cancer<br>Uterine cancer |

[A] Risk is greater with oral estrogen administration than with transdermal estrogen administration.
[B] Additional risk factors include age.
[C] Includes bipolar, schizoaffective, and other disorders that may include manic or psychotic symptoms. This adverse event appears to be associated with higher doses or supraphysiologic blood levels of testosterone.

"Almost all the studies done in transgender adolescents have used longitudinal retrospective methods, in which limitations include loss to follow-up, and sample sizes are often small. Intervention regimens are also heterogeneous and adherence can be inconsistent. Findings are

predominantly based on short-term safety profiles, and medium to high levels of bias (through participation, attrition, and outcome measures) have been reported" (Chew et al., 2018).

"Oestrogen and testosterone therapies in transgender adults can exert transient or long-term effects on metabolic variables such as lipid status (Hembree et al., 2017), which is supported by evidence from other studies in adolescent and adult populations that have received hormonal treatments for medical conditions (e.g., testosterone for delayed pubertal development in cisgender males)" (Mahfouda et al., 2018). While gender affirming hormone therapy in transgender men both improves and impairs several surrogate cardiovascular risk markers, very few prospective studies with long follow-up and control group are available. In their small prospective observational study of 20 transgender men Aranda et al. (2019) showed changes in metabolic and inflammatory parameters after 6 and 12 months of hormone therapy follow-up, which could increase cardiovascular risk, together with initial evidence of vascular changes.

"Elevations in haemoglobin and haematocrit have been noted in several populations that receive testosterone therapies, including transgender adult males (Aranda et al., 2016; Jacobeit, Gooren & Schulte, 2007). Several studies in transgender adolescent males have also showed a statistically significant increase in haemoglobin and haematocrit concentrations in response to testosterone therapy (Troutman et al., 2014; Tack et al., 2016; Olson-Kennedy et al., 2018). Importantly, no clinical complications were observed to warrant treatment discontinuation. In their transgender adolescent male sample (n=25, mean age 17.4 years), Tack and colleagues (2016) noted that haemoglobin and haematocrit concentration variables increased, but had stabilized at 6 months" (Tack et al., 2016; Mahfouda et al., 2018).

"In transgender adolescent females that received estradiol (a synthetic form of oestradiol), two separate studies found that haemoglobin and haematocrit had not decreased at either 6 months (n=44, mean age 18 years) (Jarin et al., 2017), or 12 months (n=28, median age 16 years) (Hannema et al., 2017). Conversely, Olson-Kennedy and colleagues (2018) noted a statistically significant decline in haemoglobin concentrations after a 2 year course of estradiol in their sample of transgender adolescent females (n=25, mean age 18 years)" (Olson-Kennedy et al., 2018; Mahfouda et al., 2018).

"A statistically significant decline in mean serum high-density lipoprotein (HDL) concentration has been noted in transgender adolescent males after 6 months of testosterone treatment (Jarin et al., 2017). In a separate study that examined HDL over a 2-year period (in a different sample of transgender adolescent males using testosterone) the mean HDL reduction was clinically significant (Olson-Kennedy et al., 2018). No changes in low-density lipoprotein (LDL) or triglycerides have been documented in the short term for transgender adolescent males (Tack et al., 2016; Jarin et al., 2017), although statistically significant increases in triglyceride concentrations were observed by Olson-Kennedy and colleagues after 2 years of receiving testosterone (Olson-Kennedy et al., 2018). Overall, none of the studies reviewed showed significant changes in mean total cholesterol concentrations (Tack et al., 2016). Elevations in systolic and diastolic blood pressure with testosterone treatment have been observed after 2 years, (Olson-Kennedy et al., 2018) but not 6 months." (Mahfouda et al., 2018)

"Studies that have examined safety indices in transgender adults receiving testosterone and oestrogen have mostly been reassuring, with many supporting the short-term safety of treatment, when taken in the context of medical supervision to monitor risks (e.g., polycythaemia in transgender males, venous thromboembolism in transgender females) (Weinand & Safer 2015; Vita et al., 2018). For transgender females, oestrogen therapy alone is insufficient to produce the desired feminizing effects. Spironolactone, an aldosterone antagonist with weak oestrogenic properties, is one of the most commonly used adjuncts to support oestrogen therapy in transgender females. As a potassium-sparing diuretic, spironolactone can cause hyperkalaemia, therefore potassium concentrations **should be monitored every 3 months**. Other adjuncts that can support oestrogen therapy in transgender females include Hannema and colleagues found that alkaline phosphatase decreased in transgender adolescent females receiving estradiol; the decrease occurred in the second and third years of treatment, which the authors surmised was probably due to a reduction in growth velocity (Hannema et al., 2017). The study did not report any changes in other measures of liver or renal function. Although high doses of oestrogens might increase the risk and incidence of venous thromboembolic events in transgender women (Getahun et al., 2018), lifestyle factors such as smoking, and the use of conjugated or synthetic oestrogens (e.g., ethinylestradiol) might contribute to the elevated risk" (Van Kesteren et al., 1997; Toorians et al., 2003). "Longer term evaluations of metabolic and other physical variables are warranted to clarify long-term safety" (Mahfouda et al., 2018).

"Other investigations into the short-term safety of gender-affirming hormones in transgender adolescent females have found statistically significant changes in some variables, including potassium (Olson-Kennedy et al., 2018), alanine transaminase (ALT) (Jarin et al, 2017), prolactin (Olson-Kennedy et al., 2018), and thyroid-stimulating hormone (TSH)(Tack et al., 2016). In transgender adolescent males, statistically significant increases have been observed in concentrations of aspartate transaminase (AST) (Tack et al., 2016; Olson-Kennedy et al., 2018), ALT (Tack et al., 2016; Olson-Kennedy et al., 2018), potassium (Olson-Kennedy et al., 2018) and thyroid function (TSH and free thyroxine)(Tack et al., 2017). Collectively, the consensus among the authors of these studies is that the changes observed in transgender adolescents do not pose a clinical risk, but additional studies are warranted to clarify long-term safety" (Mahfouda et al., 2018).

"In accordance with the Endocrine Society Guidelines (Hembree et al., 2017) monitoring Bone Mass Density (BMD) parameters in transgender adolescents is recommended both prior to and during gender-affirming hormonal treatment" (Mahfouda et al., 2018).

"Transgender adults have an elevated mortality risk compared with the cisgender population, but data suggest that this risk is attributable to extraneous factors, such as suicide, lifestyle factors, and complications related to HIV, rather than hormonal interventions" (Asscheman et al., 2011; Mahfouda et al., 2018).

Van de Grift and colleagues (2017) found that 200 individuals who provided information at baseline upon entering into gender identity clinic and at 6 years follow-up who received hormone or surgical intervention reported increased body satisfaction compared to individuals who had received no treatment ($n = 29$). Body satisfaction was not related to gender dysphoria, but was positively related to psychological symptoms. In other words, there was individual variation, but

in general, transition-related medical intervention can decrease psychological symptoms and increase body satisfaction. White Hughto, and Reisner (2016) systematically reviewed three studies from gender identity clinics across Italy and Belgium and found that 247 transgender individuals receiving hormone treatment reported significant improvement in psychological functioning (i.e., general mental health symptoms and quality of life) after starting hormone treatment at 3-6 months and 12 months. There was a statistically significant improvement in self-reported quality of life for the transfeminine group ($n = 180$) and a non-significant improvement for the transmasculine group, which may be related to a smaller sample ($n = 67$). Hughto and colleagues (2020) identified that social and medical affirming interventions were inversely related to self-reported mental health symptoms and non-suicidal self-injury in a sample of 288 US-based individuals.

While conclusive research is still in early stages, the positive effects of hormone treatment and/or surgical intervention may be experienced even as early as 3-6 months (e.g., White Hughto & Reisner, 2016).

Conclusion:

As stated in the WPATH, all medical interventions carry risks with the likelihood of a serious adverse event depending on numerous factors: the medication itself, dose, route of administration, and a person's clinical characteristics (age, comorbidities, family history, health habits). It is thus impossible to predict whether a given adverse effect will happen in an individual.

Based on the above detailed evidence from the literature, 36 months seems to be a reasonable period of stability to consider before accession to decrease a risk of non-deployability and adverse attrition.

*d) What would be the next logical steps for further research into this space to inform DoD medical standards?*

While the precise research evidence-based answers to all the aforementioned questions are undeniably important for establishing a risk of adverse attrition for these applicants, the impact on the overall military medical readiness might be negligible given the very low historic prevalence of gender dysphoria-related disqualifications reported by AMSARA (AMSARA Annual Report, 2015) and presented at the AMSWG meeting in May of 2021 (AMSARA TG preliminary results). However, the cost of treatment for those individuals may be disproportionally high. The health care utilization by these individuals after their accession have been previously estimated by the PHCoE (2020 study).

Long-term logical steps will include prospective data collection and analyses with periodic progress reports at the AMSWG meetings.

Because transgender Service members seeking transition-related medical services or potential recruits make up such a small portion of the military, it may not make sense to allocate resources

to understanding their deficits and deployability as a group and instead flexibly focus on the individual Service member's fitness for duty and individual needs.

- Because having a supportive environment has been recommended for mitigating some of the minority stress experienced by transgender individuals, what is the military doing to ensure the workplace is safe and supportive during and pre-deployment?
- How do various transgender policies impact perceived discrimination and Gen Z perceptions of the military with regard to intent to enlist?
- What is the actual prevalence of transgender and non-conforming Service members (i.e., identifying across the gender spectrum)? Currently we use gender dysphoria as an index, but does not capture non-transitioning Service members.
- How do transgender Service members enhance unit cohesion and military effectiveness?
- What unique traits, skills, and ideas do transgender and gender non-conforming communities bring to the military?

In their review article Mahfouda et al. have concluded that as gender-affirming care in adolescents continues to rapidly evolve, a comprehensive evidence base synthesizing all available data is essential to help guide clinical decision making and inform best practice. The authors have prioritized directions for future research studies (Mahfouda et al., 2018), results of which might be helpful to ascertain once they become available:

- What are the effects of initiating gender-affirming hormones in adolescence on mental health and quality of life in the short and long term?
- To what extent do potential confounding variables, such as psychological support, and experiences of discrimination, influence mental health and quality of life outcomes?
- Are there any effects associated with initiating gender-affirming hormones in transgender adolescents on a cognitive or neural level, either in the short or long term?
- Which factors contribute to compromised bone mineral density values in transgender female adolescents before receiving oestrogen?
- Does starting puberty suppression in early puberty negatively affect peak bone mass accrual and thus increase the risk of osteoporosis in transgender youth later in life? Longitudinal studies are needed to monitor bone health in transgender individuals and develop strategies for the prevention of osteoporosis.
- What is the safety profile of high-dose estradiol preparations in transgender females, often used to limit height?
- What is the long-term safety profile of the different gender-affirming hormonal regimens available?
- Does early initiation of gender-affirming hormones change the metabolic phenotype?
- Does undergoing endogenous puberty first confer a protective effect?
- What effect does early initiation of gender-affirming hormones have on long-term health outcomes?
- For transgender adolescents who receive gender-affirming hormones before 16 years of age, or gender-affirming surgery (chest-wall masculinization in transgender males, vaginoplasty

in transgender females) before 18 years of age, how does the rate of regret or disappointment compare with those who have these procedures later?

- For transgender females who have received puberty suppression in early puberty, who might have insufficient penile tissue for penile inversion vaginoplasty, how do other surgical techniques compare?
- For transgender adolescents who wish, and are considered eligible, to have gender-affirming surgery before 18 years of age, how do surgical complication rates compare with those who have surgery in adulthood?
- Since having a supportive environment has been recommended for mitigating some of the minority stress experienced by transgender individuals, what is the military doing to ensure the workplace is safe and supportive during and pre-deployment?

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